

VOL. XIII. NO. 2

1915

PRICE 25 CENTS

Massachusetts
JAN 10 1915
Agricultural
College

THE CORNELL COUNTRYMAN



"THE FARM WOODLOT AS A FARM CROP"

By G. W. HENDRY

"GROWING VEGETABLES IN GREENHOUSES"

By H. W. SCHNECK

"THE CROPS OF JAPAN"

By B. T. GALLOWAY

NOVEMBER



HORRIBLE



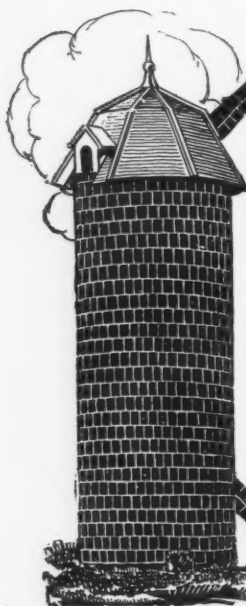
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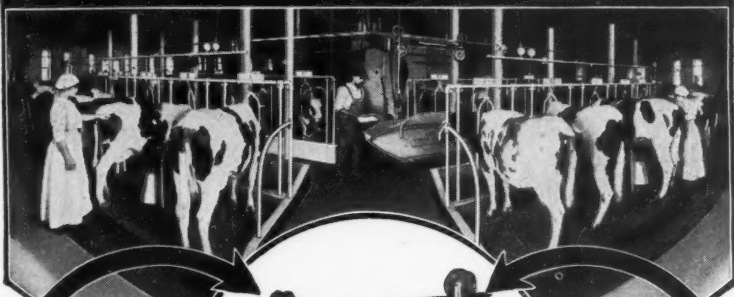
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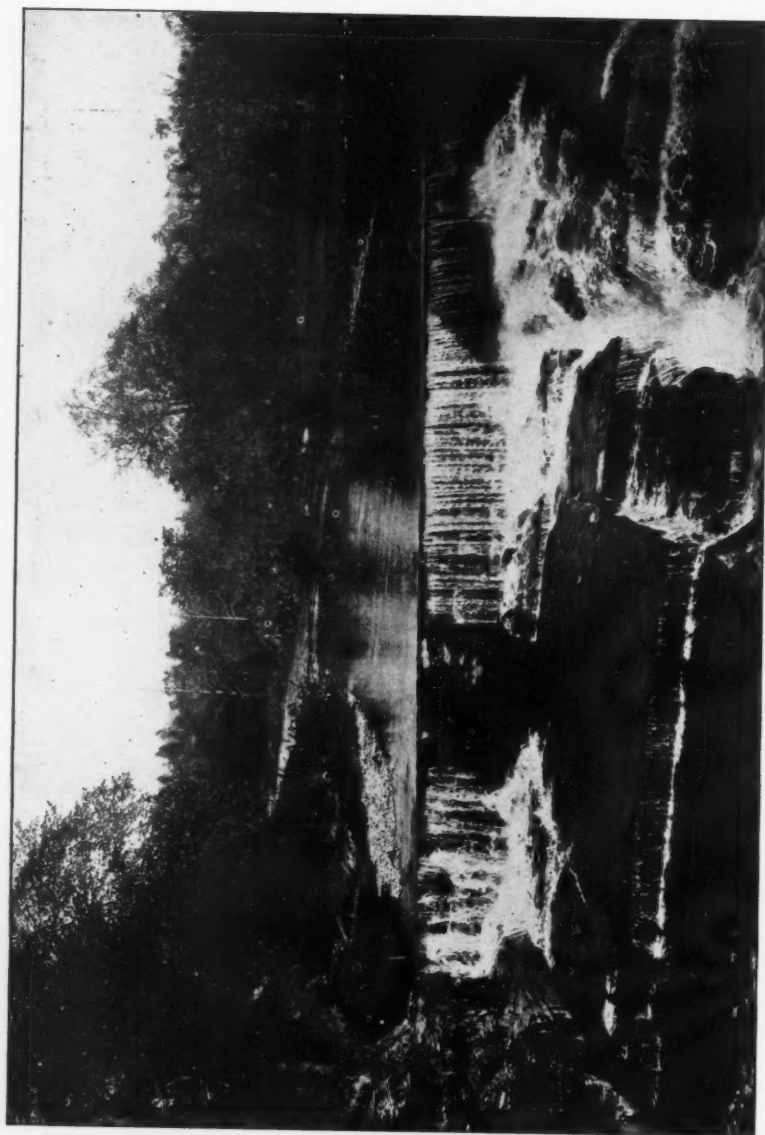
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(Photo by Cable)

THE OLD DAM AT FOREST HOME

THE CORNELL COUNTRYMAN

Vol. XIII

ITHACA, N. Y., NOVEMBER, 1915

No. 2

The Farm Woodlot as a Farm Crop

BY G. W. HENDRY, '13

Agricultural surveys prove that many farms in New York State are financially unsuccessful, and careful analyses of the business of a great many farms have been made to determine where the leaks are. A variety of causes may be responsible for these leaks: poor cows, unequal labor distribution, or inefficient coordination of the different enterprises. Each farm has its peculiar difficulties, so that there is no general panacea. But of all of the sources of waste which, united, dissipate the profits of farming, the farm woodlot in the aggregate heads the list.

The woodlot holds this position because of its immense importance in all farming sections. More than two hundred million acres are given up to farm woodlots in the United States, or an area about twice as great as that planted to corn. A slight increase in yield over this vast acreage would mean an enormous total increment. For example, the forests of Saxony return a net yield of \$5.29 per acre per year greater than the forests of

the United States. If the farm woodlots of the United States yielded \$5.29 more per acre net, the total increased revenue for one year would be \$1,058,000,000, or a sum great enough to pay for the Panama Canal (\$375,000,000), to construct the proposed inland deep waterways system (\$500,000,000), and to build 18 dreadnoughts costing \$10,166,666 each. These figures are given simply to illustrate the quantitative importance of the farm woodlots in this country. It may not be economically practicable to produce any such yields at this time, even if it were possible to practice forestry in this country with all of the refinements with which it is practiced in Saxony.

The central problem before the American foresters at present is to awaken the public conscience to the fact that only a sorry remnant of our forests remains, and that these are crying out for first aid treatment. It does not require a specialist to administer first aid; the farmer is amply qualified, if he is capable of using hard common

sense. Thus the farmer is the man the foresters are trying to reach. With so many other hands reaching toward him, it is not surprising that he should be inclined to stand pat. The forester, however, asks only that the farmer spend a few weeks, during the winter time when other farm work is slack, in his woodlot with an axe and a team, and start the improvement work so badly needed. A moment's reflection will suffice to convince the farmer that the basic principles of agronomy and silvics are everywhere parallel. The laws and forces of nature operate in the woodlot just as they do in the cornfield. The very first job, then, should be to weed the woodlot. Woodlot weeds in New York are ironwood, blue beech, hawthorn, and other such growths and shrubs, which never produce merchantable timber but which occupy the ground at the expense of desirable species. For the same reason as that for weeding the cornfield, the woodlot should be weeded.

It is needless to say that the farmer does not turn his stock into his young cornfield. Such a practice would be regarded as criminal folly. Yet nine farmers out of ten pasture their woodlots, and thereby not only destroy the young tree seedlings but also injure old ones by stripping bark from them and by trampling the soil away from the roots. Grazing also results in the hard packing of the forest floor, a condition no more desired in the woodlot than in the grainfield. If it becomes absolutely

necessary to use the woodlot for a pasture to provide forage for the stock, then the pasturage should be regulated. Pasturing the woodlot is something like pasturing the alfalfa field. Cattle do less damage in an alfalfa field during the summer than they do in the fall. Alfalfa forms crown-buds in the fall, and if these are destroyed the succeeding crop will be seriously affected. In the woodlot the young tree seedlings correspond to the alfalfa crown-buds, and when they are destroyed there is no succeeding crop of trees. In order to get these seedlings started, the cattle must be kept out for two or three years until the seedling trees become woody, and then the cattle may be turned in again. Even under these conditions, considerable damage will inevitably result. A rule which can be safely followed everywhere and at all times is, do not use the woodlot for a pasture unless it is an absolute necessity, and then graze as lightly as possible.

This identical principle is observed in ordinary pasture management. Stock is not turned on to the pasture in the spring until the grass has made a fair start, and it is taken off in the fall soon enough to leave a suitable after-growth.

Most woodlots are badly in need of a thorough culling out of the overripe, unsound, crooked, and dead trees, since this class of timber decreases in value from year to year. It occupies growing space but yields no return. It has about

the same relative value to the farmer as a cow that eats a thirty-cent ration and yields a fifteen-cent product. A woodlot full of overmature trees might be likened to a field of clover which had been left uncut too long, so that the leaves had dried on the stalks and

trees should be thinned so that each tree has a reasonable growing space in which to develop normally. The same principle is seen in the growing of many field crops. For example, it is a matter of the first importance in the growing of sugar beets to thin them out. In the su-



A NEW YORK WOODLOT AFTER THINNING

This Woodlot in Dutchess County, New York, Has Been Improved by Having Its Defective and Other Trees of Little Value Taken Out So That Those Trees Which Will Make Good Lumber Will Have the Best Chance to Grow Thriftily.

had begun to drop on the ground. The longer such a field of clover is left uncut, the smaller and poorer the yield will become. The woodlot containing overripe and dead trees is thus in every respect comparable, and the longer the harvesting of the mature trees is deferred, the smaller and poorer becomes the yield of merchantable timber.

The thinning of the woodlot should not stop with the removal of unsound specimens. Even young

gar beet sections of Colorado and Kansas, gangs of Indians from Oklahoma and New Mexico are imported annually at great expense to do this work of thinning. The growers find that it pays. German foresters systematically thin their forests and allow each tree enough room to develop. Thinning in American woodlots is even more essential, because with our greater variety of species, the crowding under natural conditions is so severe

that very often only a few of the trees attain merchantable proportions.

The degree of thinning is a matter of judgment depending somewhat upon the purpose to which the timber is to be put. Dense stands produce better telephone poles and ties than open stands. Similarly, broadcast flax produces better fibre than drilled flax, and drilled corn produces better ensilage than hilled corn.

Farmers in the northeastern United States are familiar with the use of nurse crops. Wheat and barley are the most desirable nurses because they do not shade the seedling too completely and do not exhaust the available moisture so quickly, for example, as oats. Foresters sometimes use a nurse crop in starting a new plantation. Nature uses them also in reforestation. Throughout most of the northern States of this country, aspen groves spring up after forest fires and, if not too dense, by their shelter afford ideal conditions for the growth of pine seedlings. Farmers in the eastern United

States will have no occasion to use nurse trees, but in arid regions their use is an effective means of establishing plantations.

Every farm has a perpetual demand for wood of all kinds, including fuel, posts, poles, rails, and all sorts of repair material. It is much cheaper to grow such material than it is to buy it. Of course it is not profitable to grow timber on land worth one hundred dollars an acre, but most farms have some acres on which it is profitable to grow timber. Furthermore, the woodlot provides an opportunity for profitable winter labor, and labor of a kind which does not require a large outlay of capital for equipment.

The fact that farmers are beginning to realize the great and ever-growing value of their woodlots, and are therefore beginning to improve them, and the fact that the state is going one better and aiding in reforestation by distributing trees at cost, are important and hopeful features of this phase of farm improvement.



A TYPICAL RURAL LANDSCAPE IN NEW YORK
Almost All of the Woodlots in New York State, However, Are Producing Only a Very Small Proportion of What They Could Furnish Under Proper Management.

Growing Vegetables in Greenhouses

BY H. W. SCHNECK

Instructor in Vegetable Gardening, New York State College of Agriculture at
Cornell University

No branch of horticulture is more exacting than that of vegetable forcing, or growing vegetables in greenhouses. There are many things on which a man must have definite knowledge before he can be successful in growing vegetables under glass, and this knowledge can be gained only by experience. For this reason, it is advisable for men contemplating vegetable growing to get at least one season of practical experience in a good commercial greenhouse.

In growing vegetables in greenhouses all conditions are under the control of the grower. Poor management is the only excuse for failure in this branch of horticulture. There is no form of intensive agriculture which requires more skill, patience, careful attention to details, than does vegetable forcing. On the other hand, there are few lines of work which afford more pleasure to the person who likes plants, or which bring better returns for labor expended.

LOCATION FOR GREENHOUSE

The factor of proper location for the greenhouse is one of the most important to be considered. The first point to take into consideration in respect to location is water supply. Without an abundant and reliable water supply, a greenhouse man cannot succeed. The natural drainage around a

greenhouse should be good, in order to avoid a soggy soil, in which plants cannot do well. The greenhouse should be built in such a location that it will secure the maximum amount of sunlight.

A greenhouse should never be built where it will be shaded by trees and buildings. If possible, it should be on a southern exposure protected from the north winds. It is well to have it near the dwelling house, as a matter of convenience in caring for the plants and in heating. In many cases a small greenhouse can be heated by the same boiler that heats the dwelling house.

SOIL

A sandy type of soil is to be preferred for greenhouse work, as such soil is easy to handle and takes fertilizers and water well. The soil should neither bake nor puddle and the surface layers should dry out quickly.

FERTILIZATION

Barnyard manure, spaded into the soil two or three times a year, is the best fertilizer. The manure should be well rotted when applied. Shaving manure should never be used, as it is detrimental to rootlets and impairs the normal growth and development of plants.

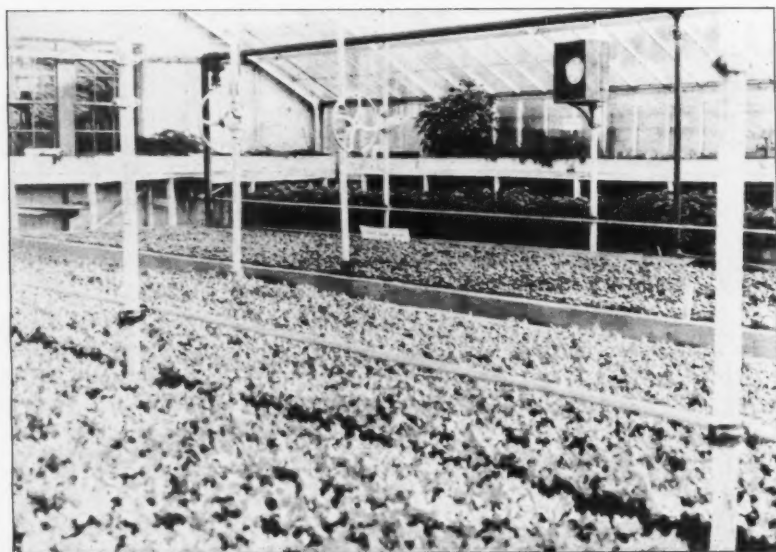
CROPS

There are two classes of vegetable crops grown in greenhouses, classed according to temperature

requirements. These two classes are "cool crops," and "warm crops." "Cool crops," such as lettuce, radishes, parsley, rhubarb, and Swiss chard, do best at a night temperature of 45 to 65 degrees and a day temperature of 55 to 65 degrees. "Warm crops," such

promise in the college greenhouses is Swiss chard. The most important factor to be remembered in selecting a crop is the time required to mature it, together with the value of the crop unit of area covered.

Most greenhouse men practice



Grand Rapids Lettuce Nearing Maturity in the College Greenhouses.

as tomatoes and cucumbers, do best at a night temperature of 65 to 75 degrees and a day temperature of 55 to 65 degrees.

Up to the present time, lettuce, cucumbers, tomatoes, and radishes are the only four vegetables that have been grown to any extent in greenhouses. There is no reason why many other crops should not be grown extensively. One of these crops is cauliflower. Another crop that has given great

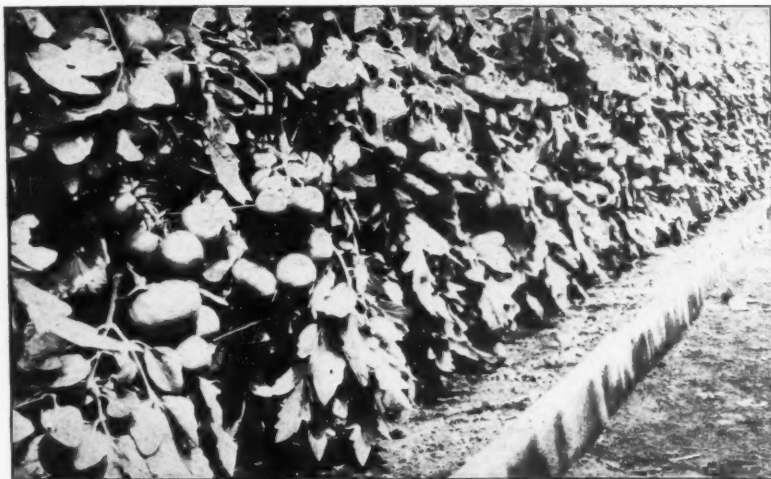
what is known as the "warm cool" system of cropping. "Warm crops" are grown in spring and fall, and "cool crops" the balance of the season. In this way, advantage is taken of climatic conditions, "warm crops" being grown when the outdoor climate is relatively warm, and "cool crops" in mid-winter when more heat is required to keep the houses warm.

LETTUCE

Lettuce, which is more widely grown in greenhouses than any

other crop, can be grown under the widest range of conditions. It does fairly well in mid-winter during dark, gloomy weather.

morning on sunshiny days so that the foliage will dry off well before night. In this way much trouble from disease will be avoided. Let-



"The Secret of Success With Fall Tomatoes is to Get Them Started Early."

The usual practice of starting lettuce seedlings is to sow the seed in rows about two inches apart, and twelve to fifteen seeds to an inch, in a small box. Ten days to two weeks later the seedlings are transplanted to another plot, being spaced from one and one-half to two inches apart each way, depending on the length of time it is desired to keep them in the beds. They will occupy these plots for three or four weeks, when they are set in permanent beds, where they are spaced six or eight inches each way, depending on the type of the lettuce grown. In transplanting the lettuce for the last time, a cloudy day should be selected so that the plants will not wilt. The plants should be watered in the

tuce requires thorough watering when small, but less and less as the plants near maturity.

The length of time required to mature a crop of lettuce depends on two factors, namely, the season and the type of lettuce grown. With an abundance of sunlight it requires about one-half the time to mature lettuce that it requires in the dark months of mid-winter. There are two types of lettuce grown in greenhouses, the "head type" and the "leaf type," or "bunching type." The latter is grown far more extensively than the former type and is not nearly so difficult to produce. The "leaf type" matures in about one-half the time required to mature the head type.

TOMATO

The tomato is third among the greenhouse vegetables in importance. It is grown chiefly in spring, although in late years many growers have had success with it in the fall.

The plants are started by sowing the seed in rows two inches apart and from ten to fifteen seeds to the inch, covering with finely sifted soil.

In two and a half weeks the seedlings should be transplanted to other plots, spacing them two inches apart. In three or four weeks they are again transplanted to three- or four-inch plots. It is very important to have strong, stocky tomato plants. They are secured by encouraging a slow, steady growth.

The secret of success with fall tomatoes is to get them started early, so that the plants are well established and the fruit is set before dark, gloomy weather sets in.



Cucumber Plant Ready for Bed, Showing Proper Root Development.

The seed should be sown about the 20th of June in order to get mature fruit for Thanksgiving.

As the blossoms open they must be artificially pollinated in order to set fruit. The common practice consists in shaking the vines two or three times a week. This should be done about noon, when the sun is shining brightly and when the house is perfectly dry and warm. During dark, gloomy weather it is best to pollinate each blossom by shaking the pollen from the blossom into a spoon and dipping each blossom into the pollen.

With tomatoes it is well to keep the foliage of the plants dry in order to avoid diseases. Therefore water should be supplied only to the soil around the plants.

There are two types of tomatoes grown in greenhouses, the English and the American type. The fruit of the English type is small and usually lacks quality, but the plants set fruit well in dark weather. The American type bears fruit of better quality.

CUCUMBERS

The cucumber is the second most important vegetable crop grown in the greenhouse. Cucumbers are usually grown only in the spring of the year. In starting the plant it is necessary to sow only a few seeds in a place, and not cover them very deep. The seed is sown in rows two inches apart. Just after the seedlings have broken through the soil, they should be transplanted into three-inch and later into five- or six-inch plots.

When the plants are six or seven



"It requires about nine months to produce a crop of cauliflower from seed."

weeks old they should be placed in beds. The spacing varies from one by four feet to four by four feet, depending chiefly on the method of training that is to be followed.

The blossoms must be pollinated artificially by bees. A hive of bees should be placed in or near the greenhouse when the plants are in bloom.

There are three varieties of cucumbers: the English, the American, and the cross between these two types. The English type is not grown to any extent in this country.

CAULIFLOWER

No vegetable makes a handsomer appearance in the greenhouse than does cauliflower. Only a few men have attempted to grow it, but these few have been very successful. The secret of success with this crop lies in avoiding any check to the plant's growth. It requires about five months to produce a crop

of cauliflower from seed.

SWISS CHARD

Swiss chard is a new vegetable in the greenhouse which has given great promise of success in the college houses. It is started in the same way as parsley. The roots of plants which have grown in the open during the summer, may be dug up and placed ten or twelve inches apart in the greenhouse bed. It can be harvested throughout the winter by keeping the leaves picked off.

RADISH

The radish is the quickest growing crop that can be produced in the greenhouse. In spring or fall, a crop can be matured in four or five weeks. Before sowing radish seed it is advisable to sift out all the seed less than one-twentieth inch in diameter. It has been found that large seeds give more mature and better shaped roots, than do small seeds.

The seed should be sown about one-half inch deep in rows in the beds. In spring and fall the rows can be closer together than in mid-



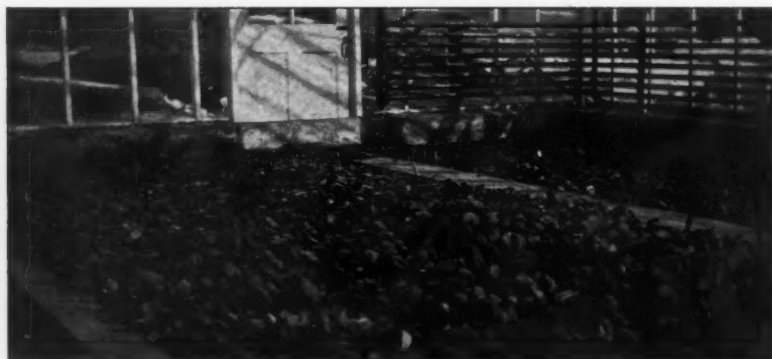
SWISS CHARD

A New Vegetable For Greenhouse Culture.

winter when the plants suffer from lack of light. A good spacing for fall and spring planting is two inches between rows and two inches between plants. In mid-winter it is best to space the rows three or four inches apart.

Great care must be taken in

watering when the plants are small. It is best to keep the soil dry while seeds are germinating, thus avoiding the growth of long spindling roots. As the radishes near maturity they may be watered heavily.



"The radish is the quickest growing crop that can be produced in the greenhouse."

The Conference of High School Teachers in Agriculture

BY A. K. GETMAN

Assistant in Agricultural Education, The University of the State of New York

The annual meeting of the New York State high school teachers of Agriculture was held at the New York State College of Agriculture, July 20-23. The conference was called by the Specialist from the Education Department as a result of a unanimous vote expressing the wish of the teachers of Agriculture at the 1914 conference to hold this meeting at the College during the month of July. The

teachers were officially notified concerning the date and the importance of the conference, and all but two teachers who will teach during 1915-16 were present. There were also present the Specialist and the Assistant in Agricultural Education from the State Education Department, representatives of the college staff interested in high school teaching, teachers from other States, and men preparing to teach.

At a business meeting of the 1914 conference, provision was made for the appointment of committees which would confer during the year on the courses of study in high school Agriculture and report at

A brief explanation of the new plan of courses will be necessary to an understanding of the program. The courses prior to September, 1915, were individual units, occupying separate places in the schedule and receiving separate



this meeting. Some weeks before the conference the outlines were mimeographed by the Department of Rural Education and a complete set was placed in the hands of each teacher. The reports of the committees and the discussion of the outlines furnished the basis of the program.

counts. The new plan provides for combining these units to form first, second, third, and fourth year Agriculture. Poultry Husbandry and Farm Mechanics constitute first year Agriculture; Soils and Fertilizers, and Farm Crops, second year Agriculture; Fruit Growing, Animal Husbandry, and Dairy-

ing, third year Agriculture; and Farm Management and Farm Machinery, fourth year Agriculture. "The plan calls for a double period each day for Agriculture and is based on the assumption that a home project is a part of the work for each of the first three years; credit for the work of the year is to be given only after the completion of the project. Regents credit of $7\frac{1}{2}$ counts is given for each year's work in Agriculture. First and second year Agriculture are prerequisite to third and fourth year Agriculture."

The conference was called to order by Specialist L. S. Hawkins, after which registration slips were filled out. The chairman of each of the committees rendered a general report calling attention to special features of the outline and to the methods employed in arriving at the final results. The exception was that Professor Fippin reported for Mr. Parker.

The results of the reports of the committees and the discussions will be found in bulletin 597 of the University of the State of New York. This bulletin is the first of a series published jointly by the Division of Agriculture and Industrial Education of the University of the State of New York and the Department of Rural Education of the New York State College of Agriculture at Cornell University.

The entire morning session on Wednesday was devoted to the address of Dr. Rufus W. Stimson, Special Agent for Agricultural Education, Massachusetts State Board

of Education. Dr. Stimson, in his stereopticon lecture, spoke of some of the problems of agricultural instruction in Massachusetts. He compared the two types of high school education and symbolized them by the capital C. and V. The C. represented the college preparatory, classical and culture training, while the V. represented vocational training. The latter has much to do with culture and gives direct training for a particular calling. A small v. within a capital C. represented a general course, the plan of study of which depends on what the boy wants to do when he gets out. A small c. with a capital V. represented a type of education strictly vocational, at the heart of which is the culture work. He emphasized the need of both types of training in a state's system. Other slides presented the organization of the agricultural high school and showed numerous views of buildings, classrooms and the boy's home projects. The great point of difference between this and the New York plan is that the boy begins with his home project and proceeds into a development of the subject, while in New York the study of the subject leads to the establishment of principles which are practically applied in the home project.

The addresses of Specialist Hawkins and Professor Works were postponed until Thursday morning. Mr. Hawkins said, in part, that the teachers are responsible to the people of the state, and that the

vital part of the work is to show them real definite results. We cannot consider individuals as standards and be guided by their successes or failures, but as a body we must stand or fall together. He mentioned the policy of the Education Department to bring all matters of change before the teachers, whom the change affects. He then presented a plan of reports that would be instituted in September, 1915. The Department of Education is to furnish blank

forms on which such reports are to be made, monthly. The report consists of a statement of what was studied, the method of procedure, and the reference in each lesson. These reports are to be filed with the Department of Rural Education at Ithaca, there to be classified and tabulated, and ultimately the results are to be returned to the teachers and used as a basis for further details in outlining the course of study.

Professor G. A. Works gave many



Members of the Conference Gathered on the Campus.

- | | | | |
|----------------------|---------------------|----------------------|---------------------|
| 1 Howard, H. O. | 27 Dayton, J. W. | 40 Cook, L. E. | 59 Hawkins, L. S. |
| 2 Copley, B. C. | 22 Howe, T. W. | 41 Whittemore, V. C. | 60 Fippin, E. O. |
| 3 Sowers, F. | 23 Peirce, C. E. | 42 Lathrop, F. W. | 61 Rice, J. E. |
| 4 Doyle, H. M. | 24 Bloss, L. M. | 43 Crandall, D. P. | 62 Getman, A. K. |
| 5 Gleason, C. R. | 25 Greene, S. S. | 44 Steele, L. J. | 67 Case, H. L. |
| 6 Allen, H. B. | 26 York, F. K. | 45 Peck, W. S. | 68 Barringer, B. E. |
| 7 Phelps, B. N. | 27 Smith, J. E. | 46 King, F. W. | 69 Champion, J. S. |
| 8 Brooks, H. F. | 28 Blanchard, G. S. | 47 Olney, R. | 70 Evans, W. E. |
| 9 Shill, C. E. | 29 Corbin, A. F. | 48 Bane, C. W. | 71 Mapes, H. M. |
| 10 Robinson, G. S. | 30 Crandall, W. G. | 49 Hurley, J. M. | 72 Benton, H. F. |
| 11 Trowbridge, O. B. | 31 Williams, A. P. | 50 Weaver, W. J. | 73 Hurley, J. C. |
| 12 Miles, W. E. | 32 Teed, M. D. | 51 Hagar, W. J. | 74 Woodward, L. H. |
| 13 Frisbie, W. G. | 33 Greiner, H. E. | 52 Morrison, M. M. | 75 Stitts, T. G. |
| 14 Flansburgh, E. A. | 34 Baker, E. L. | 53 Roth, W. R. | 76 Smith, H. L. |
| 15 Walter, M. J. | 35 Parker, N. J. | 54 Titus, R. B. | 77 Heuser, G. F. |
| 16 Clothier, H. G. | 36 Thurston, E. W. | 55 Merrill, R. D. | 78 Stokoe, W. C. |
| 17 Genung, A. B. | 37 Flanagan, D. F. | 56 Lockwood, S. R. | 79 O'Brien, D. A. |
| 18 Huey, R. | 38 Bellby, S. G. | 57 Cone, W. R. | 80 Allen, H. B. |
| 19 Johnson, K. H. | 39 Ryan, F. J. | 58 Works, G. A. | 81 De Forest, R. H. |
| 20 Eastman, E. R. | | | 82 Jacox, J. W. |

helpful and timely suggestions concerning home projects, extension work, and school management. He said that the home projects are only a means to an end, and that they must be more carefully planned. Each project and each projector presents peculiar problems which can only be solved by giving special study to each individual case. The community is the chief laboratory and the school laboratory is merely auxiliary, and not the reverse as many are making them. The teacher should realize that extension should be a natural development of the school work and that such work is important, but that the first duty is to the school. The thought was expressed that the teachers should be more energetic in gathering laboratory material. In many instances the chief reason for the refusal of the Board of Education or the Principal to purchase equipment is the lack of definiteness on the part of the teacher as to what he wants, how much it costs, and where it can be procured. More care should be exercised in the collection and arrangement of bulletins. Select the best publications and then arrange and index them in such a way that they are easily accessible.

The Thursday evening meeting with the Bailey Club was enjoyed by many. Several of the teachers gave their experiences in dealing with special problems.

The eight o'clock section of the class in Rural Education of the Summer School was given over to work relative to the conference. On Monday and Tuesday mornings, Mr. Hawkins addressed the class and many of the teachers. On Wednesday, Thursday, and Friday, fifteen-minute talks were given by several of the teachers. The topics chosen gave those present some idea of what has been done along various lines in the schools represented.

Three of the afternoons were devoted to a discussion of account sheets for the home project work. Suggestions and criticisms were received on proposed sheets. These will all be carefully considered, and it is planned to have the forms printed for use for the coming year's projects.

Resolutions of thanks were adopted and tendered to the Department of Rural Education for assistance in the arrangement and preparation of the outlines of courses.

The average attendance at the conference was between 75 and 80.



The Man on the Land on the Other Side of the World*

BY BEVERLY T. GALLOWAY

Dean, New York State College of Agriculture at Cornell University

II. THE CROPS OF JAPAN



VER since I can remember I have associated Japan and China with rice and rats. As a child, I recall with what mingled feelings of wonder and curiosity

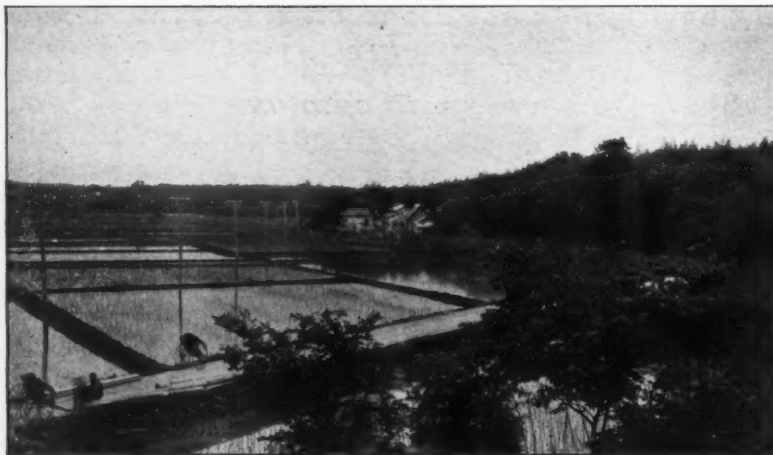
I studied certain pictures in our old geography showing an Oriental engaged in dropping a large-sized rat into a boiling pot which, according to the inscription, contained rice.

While rice is the great crop of Japan, one does not fully appreciate this in traveling through the country. From the impress made on one's mind, I should be led to call Japan the land of beans. Everywhere one turns there are beans. They may not all be beans in the strict botanical sense, but they are of the bean family and it is not likely that any living man has ever undertaken, or ever will undertake, to catalogue them. They seem to be neighborhood and community strains, the result pos-

sibly of long local selection and the lack of any means of a general interchange of seed. This localization of strains is common in many old countries, especially among primitive people, and some day, should be made the subject of study. The strains may have fixed characters that would make them of value in other regions.

The soy beans, of which there are many varieties, types, and strains, play a useful part in Japanese cooking. They are found everywhere, and one of the common sights in the country lanes is the Japanese husbandman returning home laden with his few crude tools and a bunch of dry bean plants from which are harvested the beans themselves. The surplus seed is used in the manufacture of soy, which every Japanese housewife finds indispensable in cooking. A kind of cheese and curd are also made of the bean, all being added to soups, rice, and fish. Certain kinds of red beans are used in combination with rice flour and sugar in making confectionery, and there are also many types of horse beans used as human food in both the green and the dried state. That the Japanese farmers long since

* This is the second of a series of articles on farming in foreign lands. The first article appeared in the October number of the Countryman.—Ed.



(Courtesy of David G. Fairchild)

RICE FIELDS. GROUND RECENTLY FLOODED

learned the value of the bean as a human food and as a soil improver is evidenced by the almost universal way in which it is used, and by the manner in which as a crop it is grown after and between other crops in such a way as to insure full opportunity for gathering and storing nitrogen in the soil.

The great staple crop and the basic food of the country is rice, and the genius of the husbandman is devoted to its production and use. The average consumption of rice in Japan is nearly a pound a day for every man, woman, and child in the empire. Notwithstanding the fact that this crop has been grown for ages on practically the same land, the average yield is nearly thirty-five bushels to the acre. The principal crop is grown by means of water flooding, hence is known as water rice. There is a large production, however, of upland rice, but the yield of that is not so great,

seldom going over twenty bushels to the acre. Almost one-sixteenth of all the land in Japan is devoted to rice, and nearly one-half of all the land cultivated is planted to the variety of this crop requiring water. Here are to be found some of the most striking examples of the far-reaching and potential powers of water.

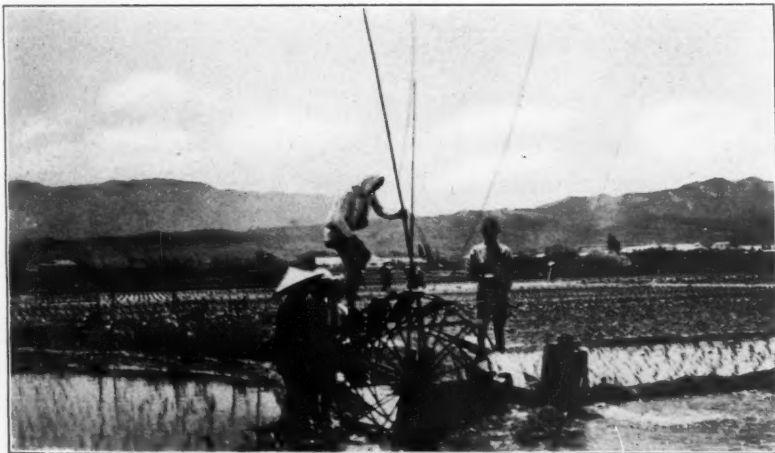
America cannot learn much of value from the Orient in the matter of the conservation and use of human labor, but she can learn a great deal and profit immeasurably by a study of what has been accomplished in the conservation of all the material resources, to the end of making agriculture permanent, self-supporting, and profitable. The Orientals have achieved a wonderful system of conservation by virtue of thousands of years of heart-breaking and bitter experiences. Famines and floods, pestilence and starvation, have stalked the land

for centuries, but out of it all has come what approximates a permanent agriculture, capable of meeting conditions and supplying needs which this country could not face for a single year. The question these observations suggest is whether America is to gain her position as a recognized agent in maintaining a permanent agriculture through the same bitter experiences as those of the Old World, or is it to be accomplished through the blessing of universal education, stimulating and broadening the powers of all our people. We believe it will come as a result of the last-named forces intelligently directed.

So far we have made but a feeble start in the conservation of our water resources. Practically nothing has been done in humid sections. Professor King, in his valuable book on "Farmers of Forty

Centuries," very truly says that sooner or later we must develop a national policy which shall more carefully conserve our water resources, utilizing them not only for power and transportation, but primarily for the maintenance of soil fertility and greater crop production through supplemental irrigation in humid regions.

The manual labor put upon the little rice fields or paddies is something that appalls the Occidental accustomed to the use of horse power and machinery. The leveling of the ground so as to insure uniform distribution of the water, the construction of the rims or the dykes, the opening and care of canals, and the planting of the rice, involve an almost infinite amount of hand labor. Practically all of the rice seed is sown in nursery beds, and from them the rice is transplanted by hand to the larger fields or paddies. These range in



(Courtesy of David G. Fairchild)

WATER LIFTING DEVICE FOR RICE FIELDS

size from those not larger than a kitchen floor to those one-fourth or one-half acre in extent. With the paddies previously prepared by dyking and flooding, and the soil the consistency of soft mortar, planting or transplanting from the nursery bed begins. Some realization of the work involved is gained when it is known that the little plants are set about a foot apart

grow and to subsist on cheaper substitutes such as barley, millet, and the various varieties of the grain sorghums.

A crop rapidly coming into favor is the sweet potato. The large amount of nutritious food that can be secured from small areas by means of the intensive cultivation of this crop makes it peculiarly valuable. In many of the towns and country villages, hot roasted



(Courtesy of David G. Fairchild)

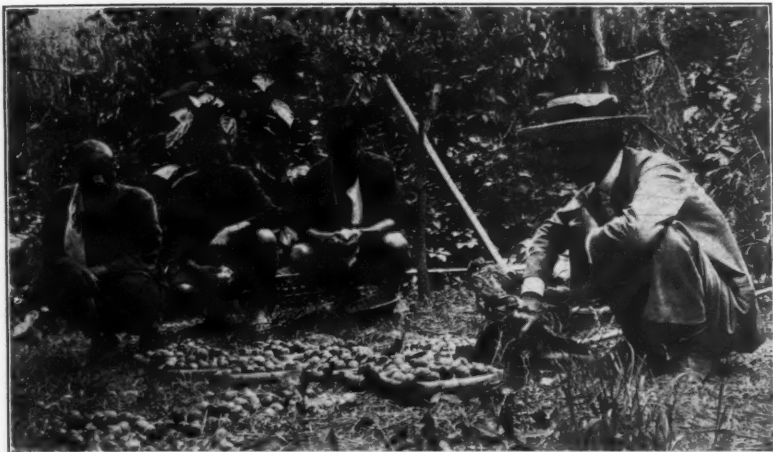
FRUIT MARKET

each way, and that there are over ten thousand square miles to be planted.

Of other grains Japanese farmers grow comparatively limited quantities. Barley, wheat, buckwheat, and millet are the principal crops. Barley is coming into rather extensive use on account of its cheapness. Owing to heavy taxes and the increased cost of living, Japanese farmers in some sections are forced to sell the rice they

sweet potatoes are sold by pushcart men and women, much as peanuts are sold in this country.

There is no extensive fruit and vegetable culture in Japan such as we have here. Vegetables and fruit are mainly for the wealthy, and there are not many such in Japan. Nearly every household, however, has its little vegetable patch, where giant radishes, eggplant, beans, peas, melons of many kinds, and various esculents resem-



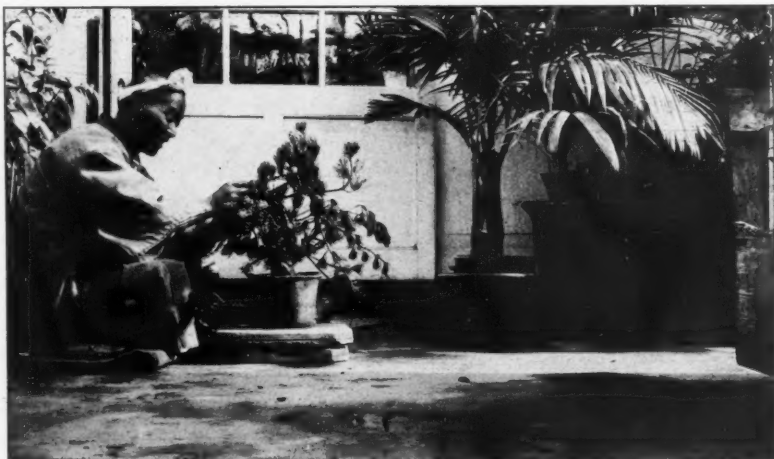
(Courtesy of David G. Fairchild)

SELLING JAPANESE PLUMS

bling our cultivated caladiums, are grown.

The fruits of Japan are a disappointment. Many kinds are grown, but as a rule they are not of high quality. Horticulturally many of these fruits are of interest, but as for their organized pro-

duction there is nothing to compare with the business in America. The persimmon, of which there are many kinds, is to the Japanese what the apple is to us. It is grown nearly everywhere and eaten by nearly everybody. I was prejudiced in favor of this fruit



(Courtesy of David G. Fairchild)

DWARFING A PINE TREE



(Courtesy of David G. Fairchild)

MANUFACTURING PAPER

before going to Japan, as I had heard much of it and some of my good and enthusiastic friends had much extolled it. I think if I had to choose between the average Japanese persimmon and a good turnip, I should take the turnip every time.

The total value of all crops produced in Japan is, of course, considerably less than that for a number of the older countries. The latest figures would indicate that

the money value of the products of the soil in Japan is about two billion yen, equal to approximately one billion dollars, or about one-sixth of our values according to the last census. Of the one billion dollars in Japanese products, rice furnishes fully one-half, the remainder being in barley and wheat, vegetables and fruits, beans, sweet potatoes, and potatoes, in about the order named.



Some Economic Considerations on Refrigeration

BY J. R. TURNER

Assistant Professor of Economics Cornell University

Refrigeration is an essential part of production. The gratification of desires is the aim of all production—production is the creation of the means of gratifying desires. Nowadays there are many stages in production. To say that the baker produces bread is short of truth; baking is but a stage in production. The farmer who grows the grain, the thrasher, the warehouseman, the transporter, the miller and the middleman represent different and necessary stages in producing bread. Marketing is as productive as manufacturing. The New York consumer is as dependent on the marketer as on the grower for his Western beef, California fruits or Brazilian coffee. Many cooperative agencies are necessary in order that the consumer may possess his goods in the right form and at the proper time and place. Economists have been concerned primarily with form production. Their illustrations are drawn from the division of labor, the organization of industry, business management and manufacturing efficiency. They have neglected community efficiency in marketing. Marketing is an alluring field for research and should be given vigorous study. Our marketing agencies are inadequate, chaotic, and wasteful — great social saving

would be effected by an efficient system of marketing. Research into the various phases of marketing must precede system. An important phase in the marketing of food products is the disposition of the surplus.

A surplus would not exist should food products ripen week by week through the year and be regularly and proportionately distributed among the widely scattered consumers. But products mature in their season and our distribution facilities are inadequate. While apples on the city fruit stands are five cents each, others as good are rotting on the ground not fifty miles distant. In October our markets are glutted with certain fruits that are not to be had in December. The writer paid fifteen cents for a melon in Ithaca and on the next day he saw a hamper of superior melons sold in the Washington Central Market for twenty-five cents. At different places at the same time and at different times in the same place there are variations from the glut with prices ruinously low to extreme scarcity with prices ruinously high. Jobbers have different means of moving products into the field of consumption, but the most important problem is to preserve the good through time until it reaches the consumer. In periods of plen-

ty reserves must be stored for periods of scarcity.

The gain to society from a proper distribution of food products through time would be immeasurable. Commodities can render little gratification and can afford almost no profit to producers when the market is supplied at one time to the point of satiety and at another time not at all. By means of refrigeration the surplus is stored and all but a normal supply is kept off the market. As need arises this surplus flows into the market place, thus equalizing the level of supply and prices through time. The total of gratifications is greatest when desires are supplied normally through time as they arise. Not only is utility or want gratifying power increased, but also prices are equalized.

Where refrigeration is properly utilized the surplus is stored in the seasons of fat, a normal supply remains in the market places and prices hold firm. In the seasons of lean this surplus is thrown on the market as demanded and prices continue firm. The law of supply and demand when regulated by a wise use of refrigeration insures the stability of prices. In 1911 a committee appointed by the French government found that varying prices and the high cost of living had a primary cause in the want of cold storage facilities. The Massachusetts report of 1912 on cold storage made a study of the prices of food products over a period of 20 years. A conclusion of this report is that refrigeration les-

sens price fluctuations and that it secures a lower average price through the year. There are those who believe that cold storage raises prices. Dr. Harvey W. Wiley says that cold storage must of necessity increase the prices of foods to the consumer, because the consumer must not only pay for the foods but also pay all storage charges. Mr. Frank Tilford of the firm of Park & Tilford of New York City, and other men of prominence hold the same opinion. Warehouses, banks, cellars, granaries, and canneries would, by this reasoning, be institutions that augment prices. The opinion that the price of products is increased because we take means to preserve them seems not well founded. It is the thought of those who hold the above opinion that the costs of refrigeration are paid in the form of a higher price for goods. They ignore the law of supply and demand, disregard the wanton destruction of food occasioned by lack of refrigeration with the consequent scarcity and high value. They do not see that to extend the period of use encourages larger production and thereby reduces prices.

In 1911 the city of New York condemned in its markets 72,785 pounds of eggs; 35,755 pounds of fish and 200,000 pounds of poultry. Refrigeration facilities were inadequate. The pure food inspectors of Massachusetts in 1912 condemned but 300 pounds out of a total of 43,000,000 pounds of per-

Continued on page 132)

New Publications of the College

Since the second term of College closed last June, there have been issued seven publications from the Cornell Experiment Station, and an equal number of publications from the College designed for the use of farmers and farm women of the state. These fourteen publications do not include a number of smaller circulars, such as announcements of various sorts. One of these announcements, "Courses in Forestry at Cornell," is probably the most attractive circular, typographically, that the University has issued.

Counting only the fourteen issues in the regular series of publications,—bulletins, circulars, reading course lessons, rural school leaflets,—there is a very respectable output, from both the editorial and the publisher's point of view, in an average of nearly five a month, or more than one a week, for what most of the University considers the vacation period. They aggregate 950 printed pages, or an average of about 68 pages for each.

IMPROVING THE OUTPUT

Mere quantity does not mean much, however. In the printed word it is quality that counts. If there has been any marked change in quality, it has come mainly in the improved appearance and greater attractiveness of the recent publications, which are only forerunners of further steps in the same direction. The latest issue of the Rural

School Leaflet, for example, has a new and more pleasing dress. Memoir 6, *Fusaria of Potatoes*, intended only for plant pathologists, is marked by notably good color plates.

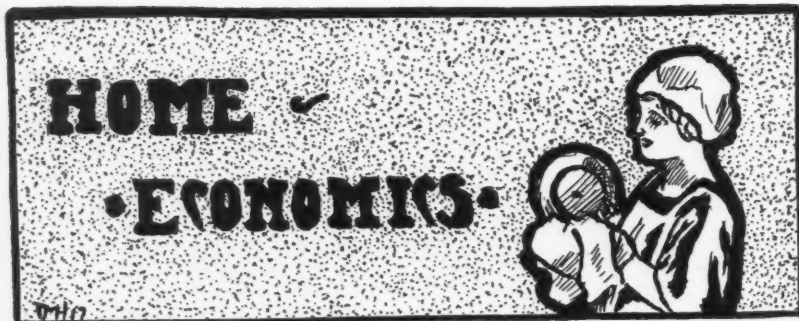
In addition to the fourteen publications which are actually off the press, there are seventeen others in proof or manuscript, some of them to appear soon. In fact, scarcely a day passes that boxes of publications are not received from the state printers at Albany, for distribution from the College.

This wealth of information is readily available to the students of the College and to its graduates, who may have it free of cost; indeed, it goes free to all in the Empire State who may have use for it, and is available to others. Heretofore its distribution was largely limited to New York State, but a plan is being worked out by which residents of other states may procure the Cornell farm publications on payment of a small sum to defray the cost of mailing. The agricultural publications are usually sent free to Cornell graduates, whether in or out of the state.

A VARIETY OF TOPICS

In the attached lists of publications the aim has been to give a brief synopsis of the contents of each, and, in a slight degree, some judgment as to the publication's use and value.

(Continued on page 136)



Some Opportunities for Home Economics Graduates

BY HELEN CANON

Editor, Department of Home Economics, New York State College of Agriculture at Cornell University

Dr. Langworthy, Chief of the Office of Home Economics of the U. S. Department of Agriculture, in addressing a group of students not long ago, made the statement that home economics leads one wherever she wishes to follow it. The vast number of possible lines of study included under the head of home economics is suggested by the following definition, which was formulated by a committee of the American Home Economics Association: "Home Economics, as a distinctive subject of instruction, is the study of the economic, sanitary, and esthetic aspects of food, clothing, and shelter as connected with their selection, preparation, and use by the family in the home or by other groups of people." The earlier in her college course that a student can decide on the particular line along which she wishes to follow home economics, the more wisely will she be able to

choose her courses and the greater will be her gain in the end.

Teaching has been the line of least resistance too long, perhaps, for the good of the profession. Many a college graduate has discovered after teaching for two or three years that her best work cannot be done in this field. The time to study her ability and inclination is early in her college course, when, if teaching is decided on, courses in education may be elected along with courses in the subject matter of home economics, and a real interest thus developed in the science and the art of teaching.

Among the familiar positions to which a study of home economics leads, there are, besides teaching, the various phases of institution management, such as dietetic work in hospitals and similar institutions; catering; housekeeping in dormitories and hotels; management of

cafeterias, college dining-rooms, tea rooms, and clubs.

As home economics grows in breadth and intensity, many positions other than those now commonly known will be developed. Until such positions are sufficiently plentiful to create a demand for special training in the college class room, the student will probably be required to serve an apprenticeship for a year or so at a lower salary than she would be able to command if she should choose one of the more familiar positions for which training is offered. If she believes in herself and in the possibilities of her new position, she is likely to be far happier in her work, as well as a more efficient worker, than if she had tried to adjust herself to a position for which she was not suited. The newer positions, in some of which graduates are already achieving success, will become more plentiful as home economics work becomes better organized and its possibilities more widely recognized.

It has been found that extension work in home economics, as in other subjects, must be followed by the printed page, which serves to fix facts in mind and which has the advantage of being on hand for reference after the demonstrator is out of reach. Opportunities in this direction await the student who is interested in journalism.

A position that offers many of the advantages of journalistic work as far as keeping in touch with the advance of the subject is concerned, is that of librarian in

a home economics library. A person of good judgment who has been fortunate enough to be able to combine library training with a study of home economics subject matter, would be a valuable addition to a home economics department.

On the more practical side there is the position of laundry manager that has already been successfully undertaken by certain trained persons. A study of such subjects as physics, chemistry, bacteriology, economics, textiles, and laundry methods, in addition to an interest in the betterment of social conditions, opens up a large and interesting field, which is generally considered commonplace.

A study of textiles may cause the alert student to ask who selects the vast amount of materials that are displayed in retail stores. While apprenticeship for such a position may be long, an inquiry into the work of professional buyers reveals many inducements to a young woman who is familiar with foreign languages, and who likes travel and the variety that such a position may bring.

These are only a few of the positions that are open to Home Economics graduates. Whether future graduates in Home Economics become luke-warm and resigned workers or ardent and contented workers, depends largely on their initiative, their interest in the subject, and the intensity of exertion that they exhibit in attempting to place themselves under conditions that will make their work of the greatest service to humanity.

THE CORNELL COUNTRYMAN

FOUNDED 1903

INCORPORATED 1914

M. C. BURRITT, Pres. J. A. VANDERSLICE, Vice-Pres. B. W. KINNE, Sec'y-Treas.

NEW YORK STATE COLLEGE OF AGRICULTURE
AT CORNELL UNIVERSITY, ITHACA, NEW YORK

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November is famous the country over for that time-honored holiday of Thanksgiving. To many of us it means turkey with cranberry sauce, a football game, a trip home, and at least one day cessation of our University activities. But Thanksgiving Day is set aside for a far different purpose. As the name indicates, it is a day of general thanksgiving. It is a time when we are expected to show our gratitude for all benefits we have received. One of the greatest things that the student of this college has to be thankful for is the splendid facilities offered here for him to learn his profession. In the college world and particularly among the state agricultural colleges of this vast country Cornell stands preeminent. This means that right here at this college we have opportunities for learning such as are offered nowhere else in the United States. During the past years, improvement of the curriculum for the undergraduates benefit has taken great strides so that it is now remarkably complete.

Therefore let us not forget when the day comes, the exceptional opportunities we have here at Cornell and be thankful that we are enrolled in this great University.

The Growth of Agricultural In- stitutions as Shown by Statistics

At the student assembly of the College of Agriculture held October 14, Dean Galloway gave some interesting data regarding the development of agricultural education in this country. While this growth has been phenomenal in many cases, the fact remains that only a small percentage of the rural population of this country has had a college education. The Dean made the following statements:

"The latest data regarding the number of land grant colleges, professors, instructors and assistants therein show that there are now 68 of these institutions, of which 65 maintain courses of instruction in agriculture. In 23 states the agricultural colleges are connected with the state universities. In 16 states and territories separate institutions having courses in agriculture are maintained for the colored race. There are now engaged in research work, teaching and extension activities in the experiment stations and land grant colleges 7,651 specialists. There are 55,129 students enrolled in colleges of agriculture and mechanic arts. The total number of all students in these institutions is 105,803.

"In January of this year some data were collected showing the number of students, professors, instructors and assistants, and state appropriations for maintenance in seven of our large state institutions. Wisconsin had an enrollment of 1,724 students with 97 professors, instructors and assistants; \$339,000 was being expended for the support of the work. Illinois had an enrollment of 1,097 students, with 88 professors, instructors and assistants, and the state was expending \$222,740. Minnesota had an enrollment of 1,519 students; the number of professors, instructors and assistants was 115, and the funds expended \$341,249. California listed 1,004 students, 78 professors, instructors and assistants, and was expending \$350,000. Ohio listed 1,265 students, 74 professors, instructors and assistants, and was spending \$378,000. Missouri enrolled 995 students, had engaged in the work 75 professors, instructors and assistants and was spending \$150,000. New York State had enrolled 2,557 students, the number of professors, instructors and assistants was 142, and the expenditure for maintenance, \$520,000.

"These seven institutions, therefore, had enrolled 10,161 students, requiring the service of 669 professors, instructors and assistants, and were expending \$2,301,000.

"The total enrollment of students in the New York State College of Agriculture for the year 1914-1915 was 2,830. **From the present outlook the number of students for the year 1915-16 will probably reach 3,000.** This includes the regular four-year students, special students, graduate students, and short course students. The total enrollment to date for regular four-year students is 1,585, against 1,530 of last year. 1,481 of these students are in the regular four-year course, and 104 are special students.

"Much of the growth in the land grant colleges has been during the last eight or nine years. Since 1910 the growth has been quite rapid. This is shown by some figures indicating the growth of the work in agriculture in some of the larger states and in the Federal

government. From 1910 to 1914 increases in appropriations for the work of the federal government was 53 per cent. The increase of appropriations for agricultural work in California was 99 per cent; for Ohio 127 per cent; for Iowa 78 per cent; for Kansas 178 per cent, and for New York 181 per cent. The funds at the disposal of the national government for agricultural work increased from practically thirteen million in 1910 to twenty million in 1914.

"Notwithstanding this very encouraging evidence as to the growth the interest in agriculture, there is still much to be done. With a total enrollment of only 47,000 in agriculture in all the colleges, out of a rural population of nearly fifty million, there is seen that only a very small part of the population is as yet able to secure education along agricultural lines. There are approximately six and a half million farms in this country, and even with our present growth in agricultural educational work, it will be many years before even a comparatively small proportion of the farms can be represented in the broader questions of agricultural vocational learning."

**Farm Bureau
Publications**

With the rapid development of the agricultural press during the past years and the spread of information to the farmers of this country, have come the various Farm Bureau News bulletins. This new field in agricultural journalism has been taken up by county agents to the extent that we now have 19 such publications in New York State alone. These leaflets serve a real need in disseminating local knowledge in a thorough, practical way.

**Fundamental
Training**

In the course of the past few weeks we have heard much of the difficulty of students in finding courses which they wanted. Is it not more of a question of what they don't want to take, rather than of what they can't find? It is human nature to want to take those courses which seem on the surface to be the most practical with the ultimate view that they will bring in a real monetary gain. But after we get out of college and are paddling our own canoe, what do we remember? Surely it is not the intricate theories advanced by some scientist. It is hard to say just what we are likely to remember, in fact, it is not absolutely necessary that we remember anything. It is the training in those fundamental courses that will count, for such training enables us after graduation to understand certain phenomena or reason out why certain things happen as they do. Students, then, who are looking for so-called practical courses will do well to remember the next time they arrange their schedule, that after all, it is not so much what practical knowledge they will absorb, but the training in fundamental sciences that will bring the ultimate results.



Campus Notes

The Department of Soil Technology has recently received a shipment of ten tons of Ontario loam soil from Monroe

To Experiment On Ontario Loam

County for the purpose of determining its fertilizer needs. This soil was carefully removed in layers of one foot each, to the depth of three feet, and each layer has been kept separate. On arrival at the College the soil was placed in three-foot cylinders, each layer being in the identical position that it occupied in the ground. A series of fertilizers were then added. At the present time plants are growing in the soil, but no results are as yet apparent.

Fifteen hundred pounds of butter and two hundred pounds of cheddar cheese are being made daily by the Commercial Dairy Department of the University. The Department is also placing on the

Ten Tons of Milk Used Daily by College market several kinds of soft cheeses and ice creams. The daily collections from the various receiving stations and from the college

herd amount to twenty thousand pounds of milk.

Growth in the business of this Department has made necessary the purchase of a new two-ton truck to collect cream from the different receiving stations around Ithaca. The operation of this truck has reduced the cost of hauling one-quarter cent on each pound of butter. The creamery has lately installed a new ice cream mixer, a Wizzard pasteurizer and a recording thermometer.

In addition to the regular students who have their laboratory work in the creamery, the Department is employing twenty men registered in the Winter Courses in Dairy Industry. The fall registration in this Department shows an increase of fifty men over last year.

The dedication and formal opening of Schoellkopf Field and Memorial Training House took place on Saturday, October 9, preceding the Williams

New Athletic Field and Training House Formally Dedicated football game. The trustees, faculty, and five thousand students

marched from Goldwin Smith Hall

to the stadium. After arrival there, George W. Bacon, '92, chairman of the Alumni Field Committee, was the first speaker, talking for the men who worked to make this giant athletic plant possible. Following him, Paul Schollkopf, '06, formally presented the keys of the field and training house to President J. G. Schurman, who delivered the address of acceptance. The singing of "America" by the entire assemblage closed the ceremonies.

This event marks the successful culmination of ceaseless efforts on the part of Cornell Alumni to provide adequate facilities for Cornell teams.

As mentioned in the previous issue, the Home Economics Cafeteria was closed down at the end of the Summer School and a number of repairs and

Improvements in the Home Economics Building changes were made. The service counter was changed from the east side to the northeast corner.

The present entrance is the old exit, and the exit now being used is through the old dish-washing room, the remaining part of which is to be made into a salesroom. The transfer of the dish-washing room to its proper place back of the service counter is an important feature. Cafeteria income funds are being used for these interior improvements.

Additions are being made to the main dining-room at both the east and west ends. Sliding doors will

take the place of the present partitions, making it possible to close off the additions from the main dining-room. These may be used for private dining-rooms, faculty dinners, and the like. There will be a basement in the east end addition, which will be used for the storage of vegetables, coal, etc. Space is being reserved in the east addition for a ventilating machine.

Construction of the new tool barn north of the Ag. Barns is now well under way and **New Tool Barn Being Built For College** in all probability this new structure will be ready for occupancy the second week in November. It is being erected on a concrete foundation, with iron walls and metal roof so that it will be fireproof.

The east section of this barn will be a tool and farm implement storeroom, while the west end will be used for an auto and machine repair shop.

According to official notice, the campus in the immediate vicinity of Roberts Hall is now torn up for the last time. A portion of the main tunnels and underground mains for **The Last Excavation** the heating system, costing \$35,000, was completed on May 5. An additional appropriation for an equal amount was made, and this is the work which is now in progress.

When these improvements are completed, Bailey Hall, Home Economics, Caldwell Hall, and Roberts Hall will be connected with the

main heating plant, and the soil that has so many times been turned will at last rest in peace.

M. C. Burritt, State Leader, has made tentative announcement of the program for the **Third Annual Farm Bureau Conference** to be held November 8-13, in

of some phase of their specialty. In the afternoon the Animal Husbandry Department will do like service. The remaining sessions will be devoted to group conferences, business meetings, and the discussion of projects for 1916.

Miscellaneous Notes

The second transcontinental tour of the Prize Winners of the High

GOODBYE TO THE PLOUGH HORSE

Henry Ford announces that after more than thirty years of toil, he has perfected a motor tractor that will give the high cost of living its hardest blow yet.

"A tractor has been my ideal for many years," said Mr. Ford. "I have worked at it constantly. It is now ready and it means much."

The inventor asserts that the new farm implement, which will cost \$200 or less, will reduce at least one-third the present cost of tilling the soil; will keep young men on the farms who will produce a greater amount of food; will give work to 25,000 men, and will mean a boom in lake shipping.

Mr. Ford plans to build 1,000,000 tractors and 4,000,000 engines yearly. He says that operations on the buildings for the manufacture of the new machine will start at once and he expects to employ about 20,000 men when operations begin.—Exchange.

Room 210 of the Forestry Building.

At the opening session, three authoritative speeches on "Farm Bureau Demonstrations" will be made. C. H. Goddard, who has charge of the national work, Professor Scoville, who has charge of the New York work, and Dean Galloway, will speak. In the afternoon, C. B. Smith, Chief of the Office of Extension, will tell of "Past Years Experience in Farm Bureau Management," and the State Leader will apply this to New York conditions.

Following sessions will be less formal. Tuesday morning professors from the Department of Farm Crops will present a demonstration

School Agricultural Clubs of California passed through Ithaca early in the morning of October 27. No stop was made here, since an effort was made to see more of rural New York than last year.

The party arrived in Buffalo on the afternoon of October 26, and were met by a representation from the Chamber of Commerce and by M. C. Burritt, State Leader, who took the party into the outlying farming sections and pointed out the features of agriculture in New York State.

Crocheron, '08, State Leader of California, writes that 35 boys took the trip last year. The route covers some nine thousand miles and

takes in practically everything in America worth seeing.

Mr. James Findley, of Salisbury Mills, offers again this year, to students in the College, prizes of twenty, ten, and five dollars. These prizes are awarded for the best discussions of some phase of drainage improvement. Any regular, special, short course, or graduate student is eligible to compete. Those who contemplate entering the competition may obtain further details from Dr. Buckman, Professor Robb, or Professor Fip-pin.

The College of Agriculture is represented by the following nine men on the football squad: W. C. Cool, '16, C. W. Bailey, '16, W. H. Jameson, '16, S. B. Tapalow, '17, A. L. Hoffman, '18, W. E. Roehers, '18, J. H. Bowker, '18, M. S. In-scho, '18, and P. P. Miller, '18.

Professor H. W. Riley of the Department of Rural Engineering has recently added to his equipment of harvesters, mowing machines, and spray rigs, a brand new Ford touring car. Just what has become of the famous two-cylinder Maxwell which Professor Riley knew better than any man knew his automobile is not made public, but it is stated unofficially that it died a natural death and is now in peaceful repose at a nearby junk yard.

With the view to becoming more intimately acquainted with the under graduates in his classes, Professor A. W. Gilbert, at the beginning of this term, circulated cards in his classes on which were placed

data on the student who filled them out, including his University activities. In the course of the term he expects to have also on this card, the photograph of the student. Another department which is doing a similar work is the Poultry Reportment.

Preliminary plans for the erection of a Hall of Zoology and Entomology are being considered by the State Architect. The plans,

based on the sketch-
Hall of Zo- es and recommenda-
ology and tions of the College,
Entomology are being drawn for
the purpose of mak-
ing an estimate of the cost. The
east end of the Quadrangle of the
College of Agriculture has been
suggested as a location for the
building, but nothing definite has
been decided in this regard. It is
proposed that the hall should house
General Biology, General Zoology,
all Vertebrate Zoology, and all En-
tomology, economic, systematic, and
ecologic; and Parasitology, Lim-
nology, Aquiculture, Apiculture,
and Ornithology.

With a view to developing the
grounds of the College of Agricul-
ture along broad educational lines,

Dean Galloway has
Committee on appointed a Com-
Educational mittee composed of
Uses of Professors Adams,
Grounds Davis, Montgom-
ery, White, and
Curtis, to act as an Advisory Com-
mittee on the Development and
Educational Uses of the College
Grounds.

The committee will endeavor to make the grounds typify the work of the College and serve as an inspiration to its students. While the Department of Landscape Art will continue its work on the broader question of design for the grounds as a whole, the committee will offer constructive suggestions and criticisms, which, when approved by the Dean, will be put into effect by the landscape gardener, William A. Frederick.

Twelve new appointments have been made within the course of the past few months to the instructing staff of the College of Agriculture. These appointments are as follows:

Recent Faculty Appointments A. A. Allen has been made assistant professor of Economic Ornithology to work mainly through the extension office. He comes to the College of Agriculture from an instructorship Zoology in the College of Arts and Sciences.

Albert R. Bechtel, instructor in Botany comes from the Pennsylvania State College. He is a graduate of the University of Pennsylvania, 1908, and received his master's degree in 1912. In 1912 he was in the field in connection with the Pennsylvania Blight Commission, and since that time has been instructor at the Pennsylvania State College.

J. Marshall Brannon, instructor in Botany, comes from the University of Wisconsin, where he has been a graduate student during the

past year. He has had an instructorship in Biology at the University of North Dakota.

Wallace L. Chandler, instructor in Parasitology in the Department of Entomology, comes to Cornell from the University of California, where he was a graduate student during the past year. He received his bachelor's and his master's degree from the University of California, and has been employed by the Public Health Service in special work on diseases carried by insects.

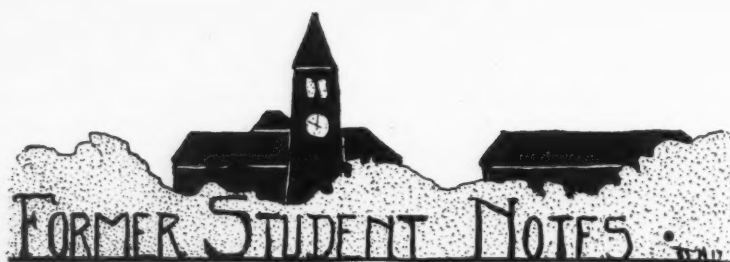
W. T. M. Forbes, instructor in Entomology, received his doctor's degree at Clark University in 1910, having specialized in Lepidoptera. He was assistant in the department during a former term.

C. H. Guise has been appointed instructor in Forestry to carry on some of the courses which have been given by Professor Frank Moody, who left the college this summer to become a member of the Forest, Fish, and Game Commission of Wisconsin. Mr. Guise has recently finished his work for the master's degree in forestry at Cornell.

Edward Riley King, assistant professor of Bee Culture in the Department of Entomology, comes from Creola, Ohio, where he has been for two years Deputy State Inspector of the Ohio State Beekeepers' Association.

J. C. McCurdy, instructor in Farm Engineering, comes from the College of Civil Engineering at

(Continued on page 148)



FORMER STUDENT NOTES



'05, B. S. A.; '07, M. S. A.—Herbert R. Cox, after receiving his bachelor's degree returned to his home in Canton, Ohio, and engaged in the fruit business extensively. In the fall of 1907 he entered the employ of the U. S. Department of Agriculture in connection with the Weed and Tillage Investigations of the Bureau of Plant Industry. He served in this capacity until June of the present year, when he became associate editor of The Country Gentleman.

'05, B. S.—J. G. Halpin, Pro-

fessor of Poultry Husbandry at the University of Wisconsin, Madison, was assistant in the local poultry department during the six weeks summer course of 1915.

'06, B. S. A.—R. R. Slocum has been appointed to the research division of the U. S. Department of Agriculture at Washington, D. C.

'08, B. S.—Clarence Lounsberry of the Bureau of Soils, U. S. Department of Agriculture, is now engaged in making a soil survey of Van Buren County, Iowa.

'09, B. S. A.—D. H. Fullerton is County Agent of Grant County, Ky., with headquarters at Williamstown. He informs us that he was married last November but neglected to mention to whom he was wed.

'09, W. C.—Floyd Sholes is now farming on his home farm near South Edmeston.

'10, W. P. C.—A. S. Chaplin, who has recently been employed in the Extension Department of Purdue University, has accepted a position with the Federal Department of Agriculture, Washington, D. C.

'10, W. P. C.—F. W. Kazmeier, who assisted in the organization

of the poultry work at the Texas College of Agriculture has been promoted from the position of foreman of the poultry plant to assistant in the extension poultry work.

'11, Sp.—James G. Cochrane, jr., is managing a dairy and general farm at South Bayfield, Mass., a village 30 miles north of Boston.

'12, B. S.—G. M. Butler was married to Annette T. Stoddart of Jamaica on July 25. Butler's present address is Branchville.

'12, B. S.—David Elder is State Director of Farm Bureaus in Rhode Island.

'12, B. S.—Laurence Howard has established a large dairy in connection with his fruit farm at Kinderhook.

'12, Sp.—I. C. Reed is operating a fruit and general farm at Oakfield.

'12, Sp.—Paul Smith is now farming in partnership with his father at Newark Valley. A large herd of high record Holsteins is kept.

'12, B. S.—Mr. and Mrs. Snodgrass (Lillian Teller, '12, A. B.) announce the birth of a daughter, Evelyn Rose, on August 31. They are located in Fredonia, Pa., where Mr. Snodgrass is instructing in the Fredonia Vocational School.

'12, B. S. A.—C. G. Wooster is managing a fruit and dairy farm at Red Hook.

'12, B. S.—Margaret Ahern in-

forms us that she is at present in charge of the nature study work in the Jefferson Building at Gary, Ind. She and her assistant are allowed to develop their work along whatever line they choose. Her work is with children from the first to the eight grades.

'12, B. S.—Mrs. Ada Strong, nee Ada Dunn, is with her husband on a large farm near Williamsburg, Va.

'12, B. S.—Myrtle Boice is nature study teacher in the Ethical Culture School of New York City.

'13, W. P. C.—C. G. Aamedt is now in the employ of the Pittsfield Poultry Farms Company, Pittsfield, Me.

'13, B. S.—C. W. Barker together with his brother Harry Barker is operating a general farm near Spencerport, growing as their principal crops, cabbage, potatoes, hay and fruit.

'13, W. P. C.—F. H. Cockell is now superintendent of the Experimental Division of the Amherst Poultry Department.

'13, B. S.—H. N. Kustchbach is at the present time farming on an 800-acre farm at Sherburne, Chenango County. In addition to keeping about 100 pure-bred Holsteins he raises as his principal crops, hay, corn, oats and barley.

'13, B. S.—O. M. Smith is located at Holly, where he is making a specialty of fruit growing.

'14, B. S.—Dudley Alleman is making a specialty of apples on his father's farm near McDougal.

'14, B. S.—S. S. Burge has been assisting in Farm Bureau work during the past summer in Otsego, Delaware, Chenango and Oneida Counties.

'14, B. S.—T. J. Conway, after having charge of the experimental poultry work at the Texas College of Agriculture, has been placed on the instructing staff in the Poultry Department of that college.

'14, B. S.—D. W. Dunn is Farm Instructor at the New Hampton Farms, where incorrigible boys, who have committed minor crimes, are sent in order to give them a different environment. The boys are taught the elements of farming with a view of making them useful members of society.

'14, B. S.—L. L. Hull is farming on his 180-acre farm at Spencer, in partnership with his father.

'14, B. S.—H. A. Leggett, an instructor in the State Agricultural School at Marlborough, Mass., has gone to the Ohio State University as instructor in the winter poultry courses. Leggett is known in New England as an expert in poultry judging.

'14, B. S.—Roy N. Harvey has resigned his position as instructor in the biology department at the Penn Yan Academy to take up his new duties at the Texas Experiment Station.

'14, B. S.—J. Lossing Buck resigned Sept. 1, from his position as Farm Instructor at the New Hampton Farms and has accepted an appointment to the Presbyterian Board of Missions as Agricultural Missionary at the Kiang-An Mission, Central China. He believes that this is an exceptional opportunity for work along Agricultural lines in China. For the first year his work consists of investigating farming conditions in that part of China, and of determining the advisability of the Board's buying land for demonstration purposes. He will sail from San Francisco, November 6th, on the Nippon Meru. He expects to be in Ithaca before leaving this country.

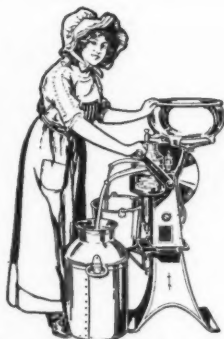
'15, W. P. C.—W. C. Cash is employed at the Belmont Farm, Perrysburg, O.

'15, W. P. C.—W. E. Chlund is poultryman at the Maplewood Farm, Attica.

'15, B. S.—Frances D. Edwards is assistant matron in one of the cottages of the New York State Training School for Girls, at Hudson.

'14, B. S.—Katherine Mills was married last June to Dr. Hamilton of Delhi. During the past year Miss Mills has held an extension position in Erie County, where twenty, three-day domestic science schools were organized with a total attendance of 3230 persons.

(Continued on page 154)



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Opp. Tompkins County Bank

**Some Economic Considerations on
Refrigeration**

(Continued from Page 116)

ishable produce in refrigerated warehouses. Dr. Wiley's argument is in error if food loss without refrigeration is greater than the expenses of refrigeration. In New York City eggs are stored for six months at an average cost of .0089c a dozen; a pound of butter for the same period for .01c, and a pound of poultry for the same period for .01c. While goods are in refrigeration the loss is negligible. Loss from deterioration takes place outside of refrigeration. Eight per cent of our eggs go to the dump each year and our annual loss of poultry and eggs combined amount to the enormous sum of \$75,000,000.

Refrigeration enables perishable products to be shipped and distributed in the most economical manner. It enables farmers to ship at will and in large lots. Local refrigeration, like cooperative local grain elevators, allows farmers to bring in their products as they mature, store them and make shipments when a sufficiency has been gathered to secure the economies of large shipments. The unit in shipments to a distant market is the carload. To secure shipping advantages, growers frequently combine and hold their products in storage at shipping points.

In addition to the economies of large shipments refrigeration enables long shipments. Because of

(Continued on page 134)

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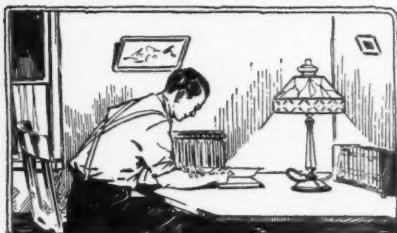
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Some Economic Considerations on Refrigeration

(Continued from Page 132)

refrigeration mutton killed in New Zealand is eaten fresh in London, market places are stocked from all parts of the world, and the stability of prices through nation-wide distribution is becoming an accomplished fact. Refrigeration cars put the California truck patch in touch with the New York consumer and thus tends to equalize land rents, living conditions, and commodity prices between the East and the West. "To cold storage largely, is attributable the fact that Florida's rural population increased from 1900 to 1910 three times as fast as the average increase of rural population in the United States." Refrigeration, long shipments, nation-wide distribution, and nation-wide stability of prices must go together.

The economies of large and distant shipments secure for each community the advantages of specialization. Specialization among growers of food products is impossible so long as the output of each section is dependent on the local supply and demand. Refrigeration will tend to further augment the advantages which comes to society from a geographic or territorial division of labor.

Refrigeration is a basic problem in the field of marketing. It preserves the surplus, lengthens the period of consumption, encourages a larger volume of production, and

(Continued on page 135)

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Some Economic Considerations on Refrigeration

(Continued from Page 134)

insures a greater variety of products at more reasonable prices throughout the year. It is productive in that it avoids premature decay of perishable products, it enables shipments at will and in large lots over long distances, it brings about specialization in community production, thus further extending the territorial division of labor. Other intermediary agencies between the producer and the consumer are becoming more and more dependent on refrigeration. We hear much about middlemen, co-operation, freight rates and service, and city markets but a proper disposition of the surplus through the aid of refrigeration is the starting point in the reforms of marketing.

NEW PUBLICATIONS OF THE COLLEGE

Experiment Station Publications Recently Issued

(Continued from Page 117)

Memoir 6. Fusaria of Potatoes, by C. D. Sherbakoff. The character and development of a potato disease; highly technical and of interest only to plant pathologists.

Memoir 7. Senile Changes in Leaves of *Vitis vulpina* L. and Certain Other Plants, by Harris M. Benedict. A discussion of the causes and effects of age changes in leaves, very technical in character but of deep significance as bearing on the whole question of senile mutations in all living organisms.

Memoir 8. A Bacterial Disease of

(Continued on page 138)

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New Publications of the College

(Continued from Page 136)

Stone Fruits, by F. M. Rolfs. The description of a disease which attacks peaches and plums, and manifests itself in various forms on foliage, fruit, twigs, and branches.

Bulletin 360. Variations in the Tests for Fat in Cream and Skimmed Milk, by E. S. Guthrie and G. C. Supplee. A discussion of the factors causing the percentage of fat in milk to vary.

Circular 29. Poultry Parasites: Some of the External Parasites that Infest Domestic Fowls, with Suggestions for Their Control, by Glenn W. Herrick. A brief popularization, of value to poultrymen everywhere, of the very complete descriptive bulletin by the same author. The bulletin from which it was derived (359) is of value mainly to economic entomologists studying the same subject.

Circular 30.—Methods of Making Some of the Soft Cheeses, by W. W. Fisk. Tells how to make the commoner soft cheeses, and is useful for the farm dairyman or the commercial creamery; plain instructions, concise but comprehensive.

Circular 31. Fall Spraying for Peach Leaf Curl, by Donald Reddick and L. A. Toan. A timely treatise for the orchardist.

Experiment Station Publications Soon to Appear

Bulletin 361. Home Grounds, by E. G. Davis and R. W. Curtis. Promises to be a classic in landscape art literature, especially in relation to small places. The first part enunciates principles, and the second part is an exhaustive guide to plant materials, their uses and qualities. Of interest to home owners though more fitted for landscape architects. A more brief and popular treatise on the same subject, now in press, will prove an inspiration to homeowners.

Bulletin 362. Soil Survey of Oneida

(Continued on page 142)

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Fig. 1500

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**Fig.
180**

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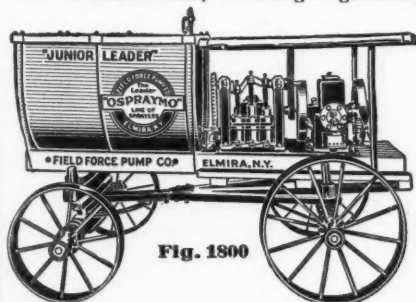
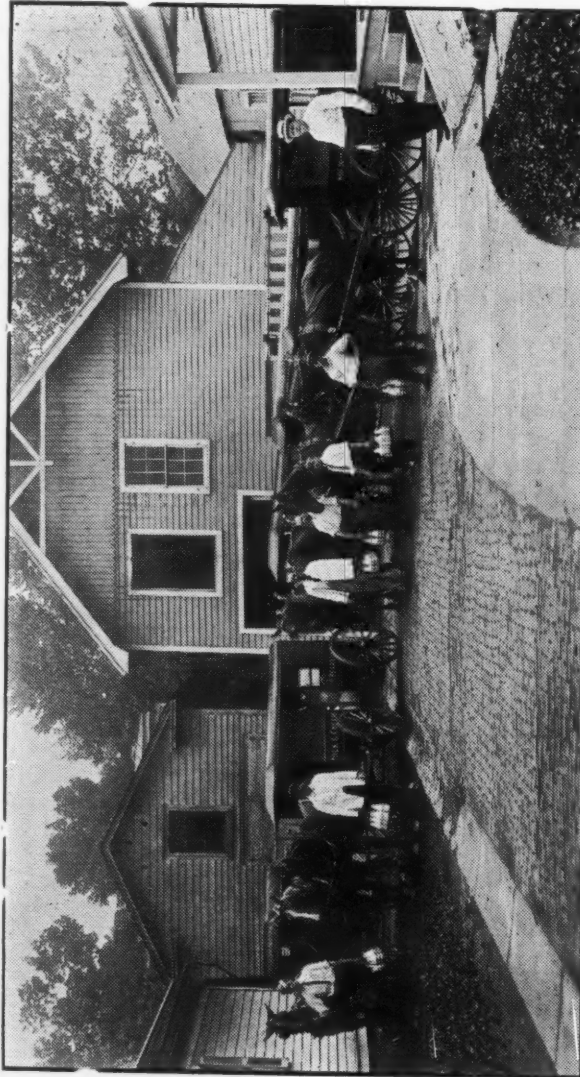


Fig. 1800

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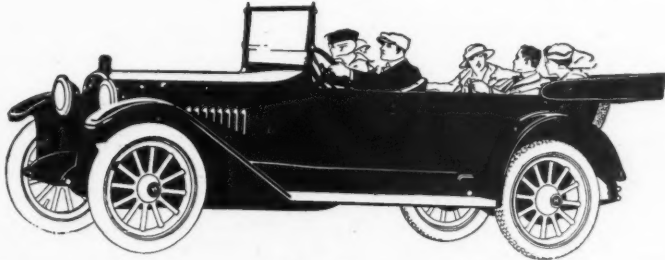


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DINNER
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FOR ALL STUDENTS

New Publications of the College

(Continued from Page 138)

County, New York, by E. T. Maxon, M. E. Carr, and E. H. Stevens. A reprint of the publication by the Federal Bureau of Soils, which describes the soils of one county.

Bulletin 363. Phytophthora Disease of Ginseng, by Joseph Rosenbaum. A description of a common ginseng disease; of interest to plant pathologists and to ginseng growers.

Bulletin 364. Cost of Producing Milk on 174 Farms in Delaware County, New York, by A. L. Thompson. A good study of farm management in a dairy district. Of suggestive value to milk producers, dairymen, and rural economists.

Bulletin 365. The Taxonomic Value and Structure of the Peach Leaf Glands, by C. T. Gregory. Shows how the leaf glands aid in the identification of types and varieties of peaches. Of use to pomologists mainly.

Bulletin 366. Forest Conditions in Broome County, New York, by F. B. Moody and John Bentley, jr. A discussion of ways of making woodlots pay in one section of the State. Of value to owners of woodlots anywhere.

Bulletin 367. Forest Conditions in Dutchess County, New York, by F. B. Moody and John Bentley, jr. A publication along the same lines as the preceding, but concerning a different locality.

Bulletin 368. Forest Legislation in America Prior to March 4, 1879, by J. P. Kinney. An exhaustive and interesting discussion of the laws relating to forestry in the early life of this country; of value to those interested in forest economics and forest taxation, as furnishing part of the historical background of present legislation.

Bulletin 369. Cost Accounts for Some New York Farms, by C. E. Ladd. Describes the system of keeping cost accounts and interprets the facts learned by them. Of practical value to

(Continued on page 144)

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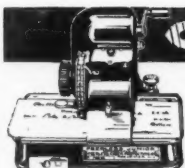
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New Publications of the College

(Continued from page 144)

farmers as a basis for making careful records of their business.

Bulletin 370. The Metallic Flavor in Dairy Products, by E. S. Guthrie. Gives results of a study of possible causes of metallic flavor in butter and other products. Of some interest to dairymen, but mainly to investigators in the same field.

Bulletin 371. The Fruit Tree Leaf-Roller, by G. W. Herrick and R. W. Leiby. A scientific description of an insect which in some seasons works great havoc in apple orchards. To be followed by a popular publication on the same subject.

Bulletin 372. Reforesting Methods and Results of Forest Plantings in New York State, by B. H. Paul. Tells how to reforest denuded lands and worn-out agricultural lands. Describes results already obtained in New York State.

College Publications Already Issued.

Reading Course Lesson 85. The Arrangement of Household Furnishings, by Helen Binkard Young. A brief popular statement of the principles fundamental to good arrangement of furnishings in a home.

Reading Course Lesson 87. The Decorative Use of Flowers, by Annette J. Warner. Full of suggestions for those interested in arranging flowers in home, church, or public hall. The illustrations are particularly pleasing.

Reading Course Lesson 89. Beans and Similar Vegetables as Food, by Lucile Brewer and Helen Canon. A brief discussion of the nutritive value of beans and other legumes, followed by directions for cooking beans so that they are most digestible, and a number of recipes. Of value to housekeepers and students of home economics.

Reading Course Lesson 90. Alfalfa for New York, by E. Montgomery. A revision of a former publication by the same author, bringing the work

(Continued on page 146)

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New Publications of the College

(Continued from page 144)

down to date, and telling what alfalfas to grow and how and why to grow them.

Reading Course Lesson 92. Summer Care of the Home Vegetable Garden. Tells how to cultivate, fertilize, and irrigate a garden; gives lists and illustrations of the best tools to use; describes different methods of training, pruning, and blanching vegetables; for the country gardener and suburbanite.

September Rural School Leaflet. A compilation of material on nature study and elementary agriculture for the use of school teachers.

Farm Bureau Circular No. 6. Summary Report of Farm Bureau Work in New York State for the Calendar Year 1914, by M. C. Burritt and County Farm Bureau Managers. Tells what the farm bureaus in each county have done during 1914.

College Publications Soon to Appear.

Reading Course Lesson 91. The Daily Life of Primitive Woman, by Blanche Evans Hazard. A series of outlines and references for programs, taking up various phases of primitive woman's life; designed especially for use in Cornell Study Clubs throughout the State, and as a background for present-day domestic science.

Reading Course Lesson 93. Farm Home Demonstration Schools. A brief statement of the plan of organization of these schools, and a description and program of an ideal farm home demonstration school that culminated in a community singing school.

Reading Course Lesson 94. The Farm Fishpond, by George C. Embody. Deals with a subject heretofore untouched in New York State, that of the development of aquatic resources on the farm. The best method of making, stocking, and maintaining a fishpond are given, together with a list of the food and game fishes best suited for propagation, and a description of their habits.

(Continued on page 148)

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New Publications of the College

(Continued from page 146)

Reading Course Lesson 96. The Surroundings of the Farm Home, by E. G. Davis. A well-illustrated, interesting publication telling how to lay out the home grounds, and giving the fundamental principles underlying landscape arrangement.

Reading Course Lesson 98. Cooling Milk, by H. E. Ross and T. J. McInerney. A discussion of the reasons why milk should be cooled as soon as possible after it is drawn, and telling how to do it. For dairymen.

November Rural School Leaflet. For children in the rural schools; a presentation of nature facts as a forerunner to an interest in agriculture.

Campus Notes

(Continued from page 127)

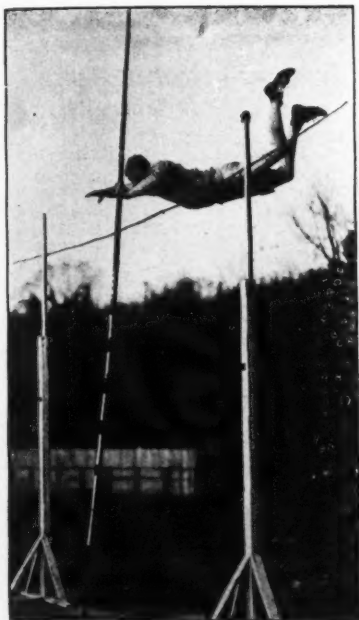
Cornell, where he has been instructor and from which he took his degree. He will specialize in sanitation work in rural districts.

William E. Mordoff, instructor in Farm Mechanics in the Department of Rural Engineering, comes from East High School of Rochester, where he has been teaching physics. He is a graduate of Sibley College.

Gilbert W. Peck, instructor in the Department of Pomology, comes from a fruit farm at Birmingham, Ohio, after having been instructor in Pomology at Cornell in 1913.

J. R. Schramm, assistant professor of Botany, comes from

(Continued on page 154)



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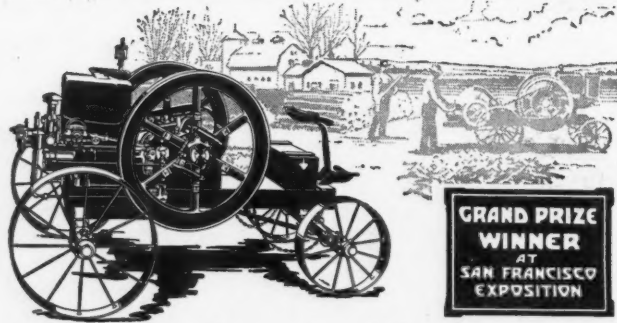
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Campus Notes

(Continued from page 148)

Washington University at St. Louis, Missouri. He has also had training and experience in his field through work in the Missouri Botanical Gardens, and also at St. Louis.

Roy Glenn Wiggins is instructor in the Department of Farm Crops, having been graduate student assistant in the department during the past year. He received his training at the University of Missouri, and received his master's degree from Cornell.

Fomer Student Notes

(Continued from page 130)

'15, B. S.—Robert D. Edwards is with the W. Atlee Burpee Co., Philadelphia, Pa.

'15, B. S.—G. F. Heuser and E. L. Banner will remain in the local Poultry Department this winter as assistants while pursuing work for advanced degrees.

'15, B. S.—C. R. Gleason has gone to Youngsville as teacher of agriculture.

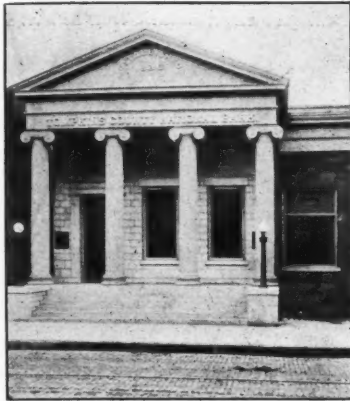
'15, B. S.—E. A. Flansburg has gone to Castile as teacher of agriculture.

'15, B. S.—Frances J. Montrose has gone to King Ferry as teacher of home making.

(Continued on page 156)

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Stover Printing Co.

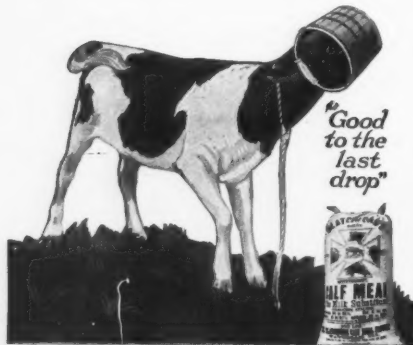
115 N. Tioga St.

"Right and On Time"

Work has won for us a very large list
of satisfied customers

ARE YOU ONE OF THEM

?



BLATCHFORD'S CALF MEAL

Should be used by all farmers who desire to raise their calves cheaply and successfully with little or no milk.

Send for actual feeding records of

Quick Calf Raising

Blatchford Calf Meal Factory

Waukegan, Ill.

Where you saw it will help you, them and us

Former Student Notes

(Continued from page 154)

'15, B. S.—Sara T. Jackson has gone to Machias as teacher of home making.

'15, B. S.—W. D. Hill is now located on his father's farm at Cleburne, Texas.

'15, B. S.—D. M. Allman is now teacher of Horticulture at the Doylestown, Pa., High School.

'15, B. S.—Emma Robinson was married to C. E. Thomas, '12 during the summer.

The Most Up-to-Date

DINNING ROOM

ON THE HILL

408 Eddy St., (Under Sturgis Tutoring Dept.)



REGULAR BOARD

With Waiter Service

\$4.50 per week for three meals a day

\$3.50 per week for two meals a day


or Cafeteria Service



Indirect Lighting

Modern Steam Tables

Excellent Cuisine



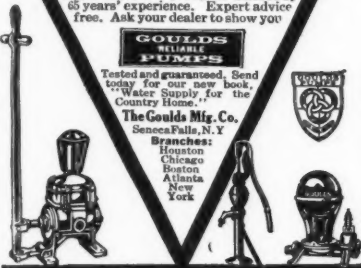

Pumps For Every Purpose
For deep wells, shallow wells; double-acting, single-acting; power outfits, etc. 300 styles and sizes—\$5 to \$300. Backed by 65 years' experience. Expert advice free. Ask your dealer to show you

**GOULDS
RELIABLE
PUMPS**

Tested and guaranteed. Send today for our new book, "Water Supply for the Country Home."

The Goulds Mfg. Co.
Seneca Falls, N. Y.

Branches:
Houston
Chicago
Boston
Atlanta
New York

Wise THE
PRINTER

is at your service
for all classes of

*Fine Printing
Engraving, Etc.*

Buffalo Street
Next to Post Office

ITHACA, NEW YORK

Dixie Brand Cotton Seed Meal

THE CHEAPEST SOURCE OF
PROTEIN FOR DAIRY COWS

Humphreys-Godwin Co.

Memphis, Tenn.

MALONEY Guaranteed TREES



An Advertisement to
Live Fruit Men

30 YEARS
400 ACRES

MALONEY TREES are guaranteed true to name and free from diseases by the largest nursery growers in New York State—For 30 years we have been in business here in Dansville and today we are able to ship you direct better trees than ever before because we are constantly studying to improve our methods—we recognize our responsibility to the fruit grower and we have this year issued a novel wholesale catalog that tells the things you ought to know about our business. Write for your free copy. No order is too big or too small for us to handle personally. We're responsible, look up our ratings. Dansville's Pioneer Wholesale Nurseries.

MALONEY BROS. & WELLS.

18 Main St., Dansville, N. Y.

Where you saw it will help you, them and us

THE PICTURE TELLS THE STORY



It shows at a glance more than could
be told by pages of printed matter

¶ WE are specialists in the production of
engravings, in black and color, for cata-
logues, magazines, and general advertising

¶ We are also equipped for printing plates
in four or more colors ∴ ∴ ∴

Send for Samples of This Work

CHRISTY ENGRAVING CO.

ROCHESTER, N. Y.

Where you saw it will help you, them and us

The Countryman is a
product of

The Atkinson Press

Earl E. Atkinson
Master Printers

122 South Tioga Street
Bell Telephone 706
Ithaca Telephone 567



We solicit a share of your printing
and assure you satisfaction.

In Chicago—The Fort Dearborn
Most conveniently located for
travelers—just opposite La Salle
Street Station. Every room Ab-
solutely Fireproof—Absolutely
Safe.
\$1.50 - \$2.00 - \$2.50—No Higher
Owned and Operated by the
HOTEL SHERMAN COMPANY



Two Departments
PHOTOGRAPHER
and
KODAK DEALER

all the latest photos
Kodaks for Sale,
Rent or Exchange

Developing
and Printing
Supplies,
Both Phones
Over 115-117 E. State St.

Van Buren

TRACY'S

SECOND HAND BOOKSTORE

all kinds of

Cornell Text Books at Greatly Reduced

Prices

307 E. State St.

Established 1873

Incorporated 1905

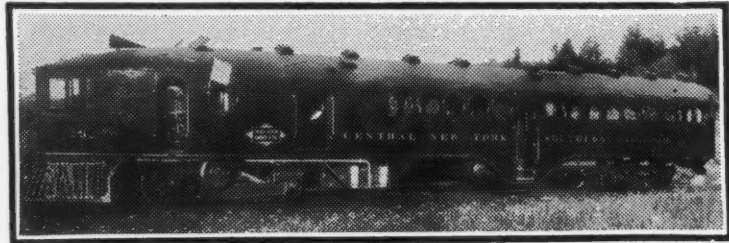
Go to JAMIESON-McKINNEY CO., Inc.

For Plumbing, Gas Fitting, Steam and Water
Heating, Gas, Steam and Water Supplies

121 South Cayuga Street

ITHACA, N. Y.

Where you saw it will help you, them and us



The "Short Line Limited" between Auburn and Ithaca

LEHIGH VALLEY RAILROAD

The only line to and from Ithaca, Cornell University with through service between New York, Newark, Philadelphia, Buffalo, Niagara Falls and Chicago. Steel Trains; Observation Parlor Cars; Electric Lighted Sleeping Cars; Buffet-Library Smoking Cars; Dining Cars; Service a la Carte; Stone Ballast :: : : : : :

AUTOMATIC ELECTRIC BLOCK SIGNALS
COMFORT SAFETY

TO THE CLASS OF 1919

Established in 1868 with the University

The Corner Bookstores

have supplied every class that ever entered Cornell
Thousands of Agricultural Books are on
our shelves—both Required and Reference.
We deliver the goods to your room---
Books at our Sheldon Court Branch, in
College Ave.---Required supplies for your
work for all departments : : :

INVESTIGATE OUR PROFIT SHARING PLAN

In writing to advertisers please mention The Cornell Countryman

HAIR CUT?

IF YOU
WANT A GOOD
ONE COME HERE



Student Barber Shop

F. M. TIBBITTS, '16
401 Eddy Street
Opposite Buffalo Street
Razors Honed 25 cents

THE SUCCESS

OF THE

Trade Mark

Registered



BRAND OF

BEEF CRACKLINGS

is due to its WHOLESOMENESS
and DIGESTIBILITY

THE FLAVELL CO.
ASBURY PARK, N. J.

Buy from the Manufacturers—High Grade
Veterinary Surgical Instruments



2 oz. Dose Syringe Dehorners, \$6.50-14.00
postpaid \$ 1.00 Impregnators, \$2.50 to
Per 1/2 doz. \$4.50, 6.00
doz. 8.00 Capon Sets, \$1.50-3.50

Write for illustrated catalogue
and special cash prices

HAUSSMANN & DUNN
Text Books and Supplies

708 South Clark St.

CHICAGO

Do Business by Mail

Start with accurate lists of names we furnish—
build solidly. Choose from the following or any
others desired.

Apron Mfrs.	Wealthy Men
Cheese Box Mfrs.	Ice Mfrs.
Shoe Retailers	Doctors
Tin Can Mfrs.	Axe Grease Mfrs.
Druggists	Railroad Employees
Auto Owners	Contractors

Our complete book of mailing statistics
on 7000 classes of prospective customers free.

Ross-Gould, 814 Olive Street, St. Louis.

Ross-Gould
Mailing
Lists St. Louis

CLOTHING SUPPLIES

will be found here in the Most Attractive Styles. Suits
ready made and tailored to your measurement. Don't
forget to see our assortment—we will be pleased to show
you Patrick Mackinaws, Sport Coats, Rain Coats, Shoes,
Slippers, Rubbers. Largest supply of furnishings in the
city.

UNIVERSITY HABERDASHERY

J. J. Gainey

320 College Ave.

COLUMBIA



RECORDS-65¢

Double-Disc

THOSE who make comparisons find it the easiest thing in the world to prove the superiority of Columbia tone. Hear a Columbia record played on your own instrument, and you will realize what *perfect* recording means. You will never again be satisfied with a tone less round and brilliant, less true and natural.

Tone superiority depends as much upon the scientific exactness of the original recording process as upon the quality of the reproducing mechanism of the instrument.

Any Columbia dealer will gladly play for you any number of Columbia Records in *any* class of music. And of course they will play on your talking machine if any standard make.



Sold in Ithaca by

COLUMBIA STORE, 307 E. State St.

E. E. ALLEN, 138 W. State St.

New York State College of Agriculture at Cornell University

The Department of Animal Husbandry

BREEDS—Percheron Horses, Holstein, Jersey, Guernsey, Ayrshire, Short
Horn Cattle, Dorset, Shropshire, Rambouillet Sheep, Cheshire Swine

Regular Public Sale of all Surplus Young Stock, Friday of Farmer's Week each year

No Stock Except SWINE Sold at Private Sale

THE FIRST NATIONAL BANK

Cornell Library Building

Capital, Surplus and Profits \$350,000 Oldest National Bank

Safe Deposit Boxes for Rent

ITHACA SAVINGS BANK

Incorporated 1868

Tioga Street, cor. Seneca

Ithaca, N. Y.

When wanting Quality, Service and Cleanliness

—GO TO—

WANZER & HOWELL, The Grocers

DANIELS & COOK, Druggists

Corner College Avenue and Dryden Road

NORTON PRINTING CO.

College, Fraternity and
Commercial Printing

317 East State St.

Producers of Books, Magazines, Cata-
logs, Proceedings, or any kind of work
that requires a large amount of machine
type-setting.

In writing to advertisers please mention The Cornell Countryman

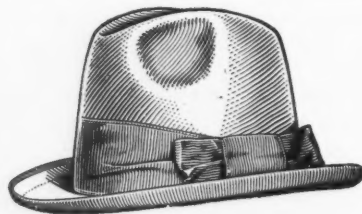
CORNELL FOOTBALL SCHEDULE

- 23 Football—Harvard at Cambridge
Freshman Football — Wyoming
Seminary 2:30 P.M.
30 Football—Virginia Polytechnic In-
stitute 2:30 P.M.
Cross Country—Harvard at Cam-
bridge
Freshman Football — Hotchkiss
School at Lakeville, Conn.
Association Football—Penn.
..... 4:00 P.M.
Interscholastic Cross Country Run
Football—Michigan at Ann Arbor
6 Freshman Football — Bellefonte
Academy 2:30 P.M.
Association Football—Yale
..... 4:00 P.M.
12 Musical Clubs Concert—Lyceum
Theater 8:00 P. M.
13 Football—Washington & Lee....
..... 2:00 P.M.
Cross Country—Pennsylvania
Freshman Football — Cushing
Academy 3:30 P.M.
17 Association Football—Haverford
..... 4:00 P.M.
20 Freshman Football—Penn.....
..... 2:00 P.M.
24 Association Football—Harvard,
Cambridge
25 Football—Pennsylvania at Phila.
27 Association Football—Columbia at

BURNS' FAMILY BREAD



IF YOU DON'T BUY
WE BOTH LOSE



DISTINCTIVE MODELS

in new fall Soft Hats, Pearl and all
New Shades

\$2.00, \$2.50, \$3.00

JOHN B. STETSON'S \$4.00

W. J. REED

PRACTICAL HATTER

STUDENT NECESSITIES

Roll Top Desks
Flat Top Desks
Swivel Chairs
Morris Chairs
Typewriting Tables
Smoker's Stands
Pictures
Artist Materials

Pictures framed at short
notice—Satisfaction guar-
anteed.

H. J. BOOL CO.

(Opp. Tompkins County Bank)

Where you saw it will help you, them and us

GO TO
J. C. DURFEY
Cleaning and Pressing

407 WEST STATE ST.
Branch: 316 1-2 COLLEGE AVE.

The Tea Room

AT FOREST HOME

Tea Room Specialties
Luncheons and Dinners

TELEPHONE BELL 4-F. 2 5

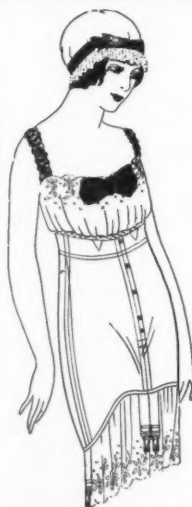
OUR AUTUMN SALE

of HIGH PRODUCING S. C. WHITE LEGHORN STOCK is open to the public at the present time. Write for particulars

The following records are productions of our flock:

	Eggs laid 1st yr.	Eggs laid 2nd yr.	Eggs laid 3rd yr.	Total eggs laid 3 yrs.
Lady Cornell	258	200	191	649
Madam Cornell	245	131	163	539
Cornell Prolific	243	162	146	551
Cornell Laywell	205	165	159	529
Cornell Supreme	242	198	225	665
Cornell Surprise	180	186	196	562
Cornell Persistent	192	197	178	567

Department of Poultry Husbandry, N. Y. State Col. of Agr. Ithaca, N. Y.



Ivy Corsets

A Corset for
Every Figure
and one for
Every
Purse

Sold by

Mills Hairdressing and Corset Shop
119 East Seneca St. or direct from
CORSET H COMPANY, Worcester, Mass.

REBUILT TYPEWRITERS

ANY MAKE
\$30.00 to \$65.00

Rental machines at \$2.00 and
\$3.00 per month. Typewriter
Ribbons and Supplies for all
Machines.

WATERMAN'S IDEAL FOUNTAIN PENS

Cameras, Films and Photo
Supplies

H. L. O'DANIEL

204 N. Tioga St.

Both Phones

MEN WITH BROAD VISION

The men in the dairy business with broad vision clearly hold to the policy that a clean dairy is a paying investment.

Others too, outside of the dairy business and yet closely related to it, also appreciate the importance of sanitation in the dairy.

Just as men of broad vision proved the inadequacy of soap and soap powders for washing milk utensils, so other men of broad vision discovered and produced a material that is adequate for dairy cleaning. That material is



Wyandotte Dairyman's Cleaner and Cleanser lends itself to your consideration because it is just the kind of cleaner you naturally would expect men closely acquainted with the demands of modern dairy sanitation to produce. It positively cleans clean, and it is harmless to milk. It has no soapy element, no organic grease of any kind. It makes no suds and therefore leaves neither soapy films or grease nor soapy odors. Nor has it any other objectionable property. As you will readily discover, Wyandotte Dairyman's Cleaner and Cleanser is more than merely a cleaner—it also sweetens and purifies, imparting a freshness and wholesomeness that is a delight to every progressive dairyman.

Ask your dealer or order from your regular supply house.

The J. B. Ford Co.

SOLE MANUFACTURERS

Wyandotte, Michigan



This Cleaner has been awarded the highest prize wherever exhibited.

IT CLEANS CLEAN

Indian in Circle in Every Package

MR. FRESHMAN

50c is only 1-2 \$ but it's up to you to look about and see where it will buy the best value. My Freshman Caps are 50c CASH and are good for a whole season. They will make good "too" or a new cap without charge.

"WHY" are my caps better? "Good Reason"

ITHACA'S ONLY CASH STORE

GEO. F. DOLL

418 Eddy St.

MEN'S FURNISHINGS

ATHLETIC GOODS

Where you saw it will help you, them and us

You Buy Lasting Satisfying Service
When You Select

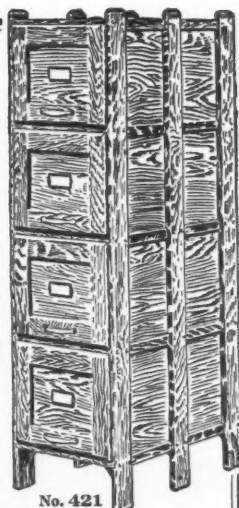
Weis Office Equipment

This Solid Oak Letter File provides quickly accessible filing space for 20000 Letter Size Papers or equivalent of Clippings, Orders, Tariffs, Etc. Practically wear-proof. Each frame joint inter-locked, glued and held with two screws. Drawers roll easily on Roller Bearings

and are fitted with strong Auto-locking Compressors.

\$12.00
Freight Paid See Note

Golden, Natural or Weathered finish—two and three drawer heights, also Cap and Invoice Sizes at proportionately low prices.



No. 421

Weis Sectional Bookcases

Are handsome, practical and easily accessible. This Solid Oak Case, eight foot book space, roomy drawer, leg base and top—any stock finish.

\$12.80
Freight Paid See Note

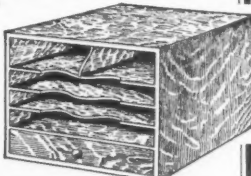
Get Bookcase Catalog "L", which shows two complete lines of bookcases for all requirements.

Stationery Storage Cabinet

For Cap, Letter and Note Size Papers, Regular and Official Envelopes, Carbon Papers, Etc. Handy on any desk. Size $7\frac{1}{2} \times 10 \times 14\frac{1}{2}$ ".

Beautiful Quartered Oak, Golden or Natural finish also Birch Mahogany.

\$2.50
Deliv'd See Note



Weis Utility Cabinet

For Electros, Blanks, Forms, Copy and other papers. Six drawers—each $1\frac{1}{2} \times 8\frac{1}{2} \times 14\frac{1}{2}$ ". All Solid Oak, Golden or Natural finish—corner-locked construction.

\$4.00
Deliv'd See Note

FREE: Booklet "Filing Suggestions" sent with 96 page Catalog "L"

Weis Swinging Desk Stand

for Typewriter, Adding Machines, Reference Books, Etc. May be fastened to either side of any style desk. Solid Oak Top, 14×18 inches on strong black enamel Metal Stand. Swings out of the way when not in use. LOCKS where you want to use it. Handy on any desk.

\$3.00
Deliv'd See Note



NOTE: We pay Transportation Charges to points in Eastern and Central States. Prices slightly higher in West and South.

The **Weis** Manufacturing Co. CC Union St., Monroe, Mich.
New York Office—76 John St.
The Knechtel Furniture Co., Ltd., Hanover, Ont. ---Canadian Makers

Where you saw it will help you, them and us

Postal Life N.Y.

Let the Postal Solve Your Life-Insurance Problem



Photo by
Fach Bros.
N.Y.

CLEVELAND

Get a policy, and then hold on to it. It means self-respect, it means that nobody will have to put something in a hat for you or your dependent ones if you should be snatched away from them.

Service

Your decision as to which policy is best will not take long if you go about it in the right way—the direct way—as made possible for you by the Postal Life Insurance Company.

It sends no note to bother you, but it forwards by mail full official information regarding any standard policy-form.

The Company will also send you on approval the policy itself, so that you can see just what you will get, and when you are once a policyholder it will continue to be at your service for consultation and advice—personally or by letter—which also includes the service of the Company's Health Bureau for policyholders.

Deciding upon the kind of life insurance policy to take out, like the purchasing of a home, whose permanent maintenance that policy makes certain, should not be a hasty matter; it is most important.

You cannot resolve too quickly that you will take out some kind of a policy. Read what four distinguished Americans say, but consider carefully just what kind will best meet your needs.



Photo by
Fach Bros.
N.Y.

ROOSEVELT

If a man is dependent upon a salary or income which will terminate with his life, it is peculiarly incumbent upon him to insure that life for the benefit of his wife and children.

Safety

The Postal is safe because it sets aside the full reserves required by law and necessary for the payment of all policy claims, now and in the future.

In addition to this legal reserve—now more than \$9,000,000, invested in interest-bearing securities, the Postal carries a surplus and has ample funds at interest in leading banks, and a special deposit of \$100,000 with the State of New York, where the Company is quartered.

Though only ten years old, it now pays—and promptly—more than a million dollars a year to beneficiaries throughout the Union and elsewhere, under policies issued through the Company's direct non-agency method of doing business and under those assumed in its reinsurance.

Saving

Besides service you will find net cost low in the Postal because you get the benefit of the agent's first-year commission—a substantial saving guaranteed in your policy.

In subsequent years you get the agent's renewal commission, namely 7 1/4%, and you also receive an office-expense saving of 2%, making up the

Annual Dividend of

9 1/2%

Guaranteed in the Policy

Beginning at the close of the second year the Postal pays contingent dividends besides, depending on earnings, and it also does away with numerous branch offices and various unnecessary State requirements, thus making additional savings.

For You and Yours

It will pay you to write to-day for the Company's Official Booklet, "SOUND INSURANCE PROTECTION AT LOW NET COST" also official figures for your own age,

on any form of policy—Whole-Life, Limited-Payment Life, Endowment, Joint-Life, Child's Welfare, or on a Monthly-Income Policy.

The Postal issues all the standard forms and all these are approved by the strict New York State Insurance Department.

Just write and say:

"Mail official insurance particulars as per The Cornell Countryman for November 1915

And to find out how much you save, be sure to give:

1. Your full name. 2. Your occupation. 3. The exact date of your birth
No agent will be sent to visit you. Commission savings thus resulting go to you because you deal direct.

POSTAL LIFE INSURANCE COMPANY

WM. R. MALONE, President

35 NASSAU STREET

NEW YORK



Photo by
Fach Bros.
N.Y.

TAFT

A man in office without means must abandon the hope of making the future luxuriously comfortable. All a man can do under existing circumstances to safeguard his family is to get his life insured.



Photo by
Fach Bros.
N.Y.

WILSON

If a man does not provide for his children, if he does not provide for all those dependent upon him, then he has not opened his eyes to any adequate conception of human life.



The Cochran is just a short walk from the White House, Department Buildings, Churches, Theatres, Hotels and Shopping district.

A hotel that you will visit a second time.

Make the Cochran your home while in Washington, whether permanent or transient.

Moderate rates considering the excellent service.

EUGENE S. COCHRAN, Manager.

COCHRAN HOTEL
14th & K STREETS, N.W.
WASHINGTON
D.C.



Commonwealth Hotel

Opposite State House, Boston, Mass. Offers room with hot and cold water for \$1.00 per day and up, which includes free use of public shower baths.

NOTHING TO EQUAL THIS IN NEW ENGLAND

Rooms with private baths for \$1.50 per day and up; suits of two rooms and bath for \$4.00 per day and up.

ABSOLUTELY FIREPROOF.
STRICTLY A TEMPERANCE HOTEL

Send for Booklet.
STORER F. CRAFTS, Gen'l Mgr.

**Guaranteed To Kill -
Every Scale
It Reaches.
What?**



If you desire for your suit a good **CLEANING AND PRESSING**, also **SUITS MADE TO ORDER** at a reasonable price, or drill suits come TO
"REITER," the Eddy St. Tailor
321 EDDY STREET Ithaca Phone 421-C

YOU CAN SEE NEW YORK CITY IN A DAY.

The Green Car automobile trips uptown, downtown, and "Seeing New York after Dark"—a night tour along "The Great White Way," through the Hebrew, Hungarian, Italian Quarters, and Chinatown, with the yacht trips around Manhattan Island constitute the most perfect Sight-Seeing Service in the world. A competent lecturer is in charge of every party. Write for beautifully illustrated 48-page historical booklet, printed in colors, with large map and list of theatres, hotels, rates, etc. Address Green Car Sight-Seeing Co., 958 Broadway, New York.

WANTED!

500 Freshmen to get a contract for
Cleaning and Pressing with

HOLLAND BROS.

Bell Phone 312 E. Seneca St.

In writing to advertisers please mention The Cornell Countryman



Hickey's Lyceum Music Store

105--109 South Cayuga St.

25 years of Musical Service to the Faculty and Students of Cornell University.

We demand Instruments of Superior True Quality from Manufacturers, such as the Victor Product, to offer our trade.

Our continuous growth from year to year is sufficient instance of the appreciation of such a policy.

In writing to advertisers please mention The Cornell Countryman

EVERY STUDENT KNOWS

Our Merchandise, Service and Quality

ARE ALWAYS THE BEST WHILE
OUR PRICES ARE THE LOWEST

Now Mr. Freshman

we want you to learn this early and in order to induce you to call, we will present you

ABSOLUTELY FREE OF CHARGE WITH
A SAFETY RAZOR
IF YOU MAKE A 50 CENT PURCHASE



Headquarters for Pennants, Banners, Pillow
Covers, Frames and all Room Decorations and
Necessities.

ROTHSCHILD BROTHERS

Corner State and Tioga Streets
ITHACA, N. Y.

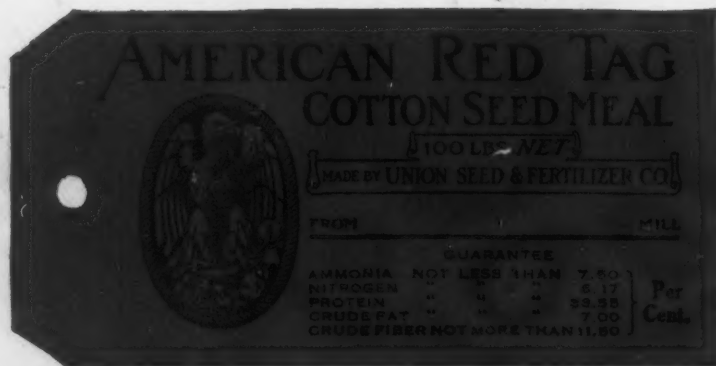
"Buy Direct from the Manufacturers"

COTTON SEED MEAL

In Bags 100 lbs. net

AMERICAN RED TAG BRAND

Guaranteed 38.55% Protein



SCREENED CRACKED CAKE

Nut and Pea Sizes

COTTON SEED HULLS

in Bags and in Bulk

Write for Delivered Prices in Car Load Lots

Address all communications to

Union Seed & Fertilizer Co.

27 Beaver Street, New York, N. Y.